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Intertwined Boundaries

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The Red Vineyards of Arles,
Vincent Van Gogh

"Wine is the child of the sun, earth, the collaboration of art, patience, time and care, the triple communion. Firstly, with soil into which it sinks its roots, and from which it receives soul and body. Secondly, communion with ourselves. It educates our taste, training us to turn our attention inwards, frees the mind and illuminates the intelligence. Lastly, wine is a symbol and the means of a social communion."

-Paul Claudel

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Ordinarily, the siting of a building interrupts the visual and physical continuity of a landscape. Each human artifact represents an intervention within the landscape, allowing architecture to serve as the mediator between the process of an element's evolution and the global context it exists within. "Every landscape is a set of elements coming together, determined by the harmony of the individual components, from things to states of mind; it is characterized by the multiple components in a unanimous picture" As M. Venturi Ferrilo states, the acknowledgment of an organic interdependency between humans and nature is crucial to an understanding of cultural traditions. The built form, manifesting processes of land cultivation combined with sensory perception transforming embodied knowledge, are equal components requiring a unified sense of place and identity. This thesis will explore ways in which a narrative experience influenced by tradition and cultural exchange serves to stimulate and depict one's understanding of the collaborative product of technique, design, and social involvement.

As time progresses, human patterns change. Daily life is a series of processes specific to the environment inhabited temporarily. Within an environment originally created by intense glacial flow, indications of successive layering, detachment, and integration exist. These ever-changing landforms are most prevalent in the Finger Lakes region of central New York. The long, narrow lakes were carved by several episodes of advancement and retreat of the glaciers. This constant motion is what transformed the area to the topography that exists today. A topographical exploration of the agricultural landscape found along Keuka Lake, the southernmost lake, exhibits the need for intervention. An opportunity to combine disparate elements to form a unified whole, while fostering a sense of place and identity allows the revealing of a measured cultural landscape along the boundary of water, earth and sky, one in which the observer is aware of a continual progress as well as a past identity.

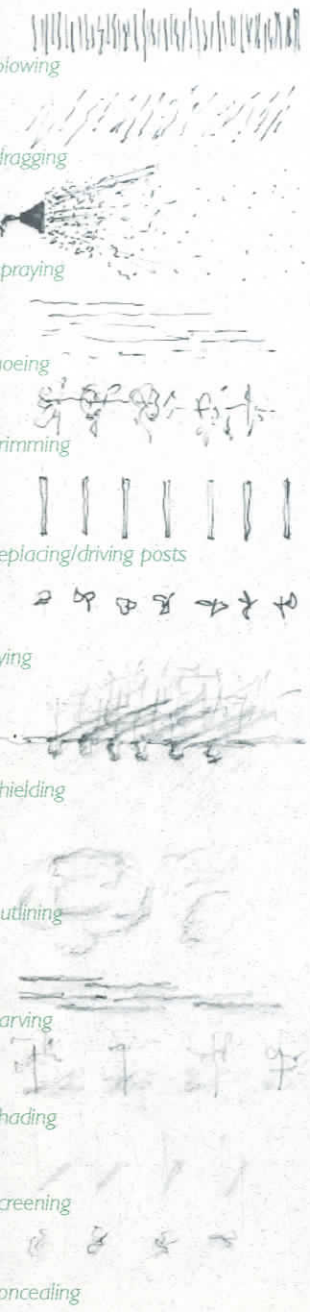
"Every landscape is an irrevocable sequence of transformations, the destination for a continuous movement directed by the origins of the territory. Social changes are recognizable within it, the modification of production forms, of living forms and cityscapes, ways of life, working and commercial activities, and above all, of the world picture." -Massimo Venturi Ferriolo

Similar to the process of design, construction is the result of an assembly of various materials; specific moments of intersection define the form and meaning a structure takes on. The resultant spaces of natural constructions are approached, confronted, related to the human body, moved through, and utilized. This can be recognized as the essence of an architectural experience: the act of construction allows our senses to be fully activated and engaged. The dynamic qualities of transformation within an architectural landscape allow for active, rather than passive relationships among light and shade, material and form, nature and man.

An architecture affected by the processes of a seasonal, agricultural harvest has the capacity to respond to the specificity of its current site, as well as to reveal traces of previous phenomenological conditions. This combination of sequential events is crucial to the way in which a grape is altered from a solid state to that of a liquid, in the case of wine. The constituent parts of the vine create a formwork similar to that which architecture utilizes; a structural composition whose rhythm and formal characteristics delineate spatial qualities, while requiring the attention and interaction of the user.

Martin Heidegger is correct in stating that, "A boundary is not that at which something is stopped, but rather, that from which something begins its presence." The transformation of wine throughout history, across cultural, social, religious, and physical boundaries has encouraged a dynamic architecture; a place in which exterior and interior thresholds merge, presence of material seeks to challenge the notion of a neutral autonomous architecture, and transitions between natural and man-made commodities easily occur. As a product, wine has far-reaching effects; more so than simply determining the town's industry where it was produced, a bottle of wine enables conversational, economonical, and technological exchange. Establishing a program to investigate the implications of viticulture as it effects the ethos of Hammondsport, NY, a hill town along the western edge of Keuka Lake, wine can be transfigured through the design of a winery and amphitheater, enabling an enhanced appreciation of the sensual and physiological cultural aspects of wine.

"The taste of the [grape]...lies in the contact of the fruit with the palate, not in the fruit itself; in a similar way...poetry lies in the meeting of poem and reader, not in the lines of symbols printed on the pages of a book. What is essential is the aesthetic act, the thrill, the almost physical emotion that comes with each reading." -Juhani Pallasmaa



Boundaries intersect, overlap, and demarcate the spaces we occupy. In ecological terms, boundaries are the most valuable parts of a system. The juncture where field meets forest is more important than either the field or forest itself. To define one's notion of a boundary is to define perception of space. Points of crossing maintain their differences while at the same time, creating something new from individual entities. The embodied knowledge we utilize in making accurate spatial judgments demands a familiarity with sequential movement; that which is procedural.

Nature as Boundary:

Movement, light, growth, change, and decay are the livelihood of nature. Rather than exist as autonomous entities, these actions blur boundaries of time, whether it be yearly, seasonal, daily, or hourly. Where water meets land, a visible and tactile boundary exists; the relationship created is constantly evolving and never static. A change in the orientation of one's body within space, either within a tunnel below a body of water, or on an airplane above land, affects the perception of the environment.

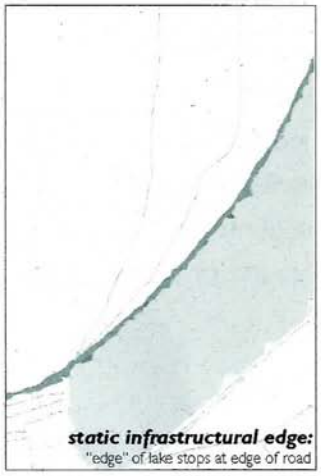
Structure as Boundary:

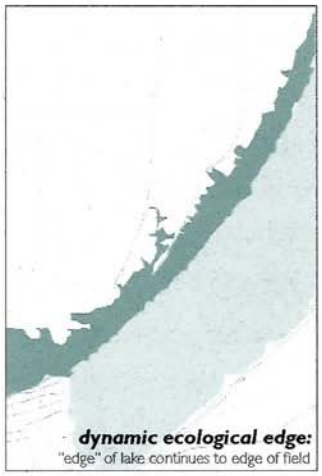
Walls, columns, and horizontal planes are the fundamental elements of architectural form. Traditionally, these elements serve to define movement, regulate function, and engage one's sense of place while celebrating a larger sensibility; the built environment as it constructs our understanding of space, light, and material qualities. Renzo Piano's Centre Pompidou utilizes a distinct structural system to organize the skeletal façade as an animated plane of motion. Structural boundaries become forms of entry, exit, and occupancy in which we choose to move through, around, or along to reach the final destination.

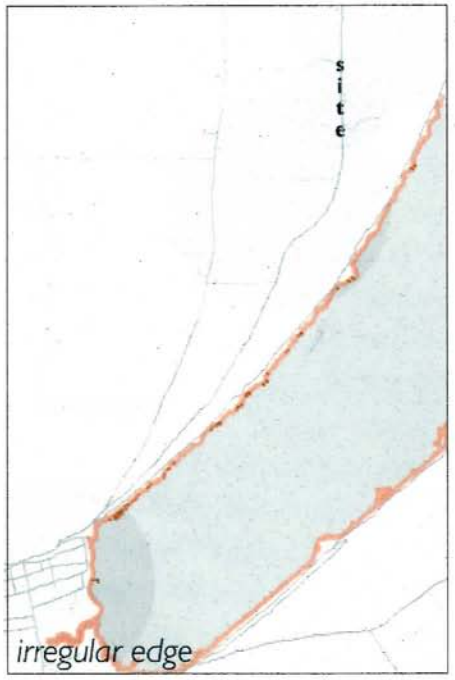
Light as Boundary:

Characteristics of bright light, shade, and shadow function as space-making devices. Aspects of natural light during the day as opposed to artificial light at night organize places of congregation. In Louis Kahn's Exeter Library, the central reading space is flooded with light to signify the process of 'enlightenment' while learning. Shadows extend through structural boundaries creating relationships of phenomenal transparency, evoking depth and texture.

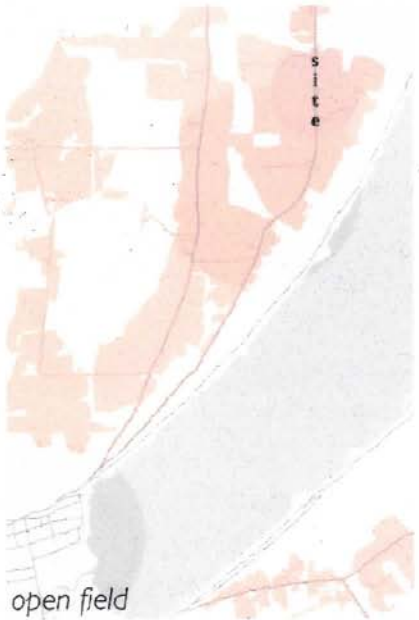
Thresholds are where transformations begin; exchanges transpire as one system gives way to the next and identities are established. At the water's edge, a mediated relationship occurs; the static quality of roads and infrastructure exists, while within the lake itself, movements of wind currents, tide changes and topographical variations create a dynamic environment for a lake's ecosystem. This idea of a blurred boundary serves to juxtapose the notion of the built environment existing as a mere object within the landscape. Because the operation of threshold relies on the activity of passage, the occupant is inscribed into the work, both physically and socially.







"A pebble polished by waves is pleasurable to the hand, not only because of its shape, but because it expresses the slow process of its formation; a perfect pebble on the palm materializes duration; it is time turned into shape." **-Juhani Pallasmaa**



open field

"Landscape" is a comprehensive phenomenon. In the urban environment, a city's landscape consists of commercial, residential, industrial and transportation zones; these spatial arrangements tend to mask the evolution and subsequent division of an entire landmass into its constituent parts. However, within a rural context, the landscape of a rural region visibly addresses the extent to which the human capacity responds to nature.

"I do not want to see architecture as a dividing line between inside and outside. Instead I would like to create a fluid transition between a building and its site, so that you will always feel connected to the land." -Maya Lin

dense thicket

The unique glacial formation of the Finger Lakes of central New York has led to an abundance of suitable land for farming. Here, the act of land division and space-making is clearly dependent on issues of active growth and enhanced sensual perception, rather than methods of purely functional programmatic zoning. Occupants of such a topologically rich location have a responsibility to incorporate expansive cultivated fields with the dense textured forests in order to continue the existing symbiotic relationship between environment and resident, otherwise lacking in the urban setting.

Directionality implies movement. While cultivating the land, the human touch is visible not only through its larger system of organized patterning, but through its repetitive demarcation of fertile ground as opposed to a densely covered forested area. These zones of crop growth respond directly to topographical changes, referring back to the phenomenological development of such an intricate ecosystem. As time progresses, land patterns influence social exchange at a global level; no longer is the vintner producing a product for a specific geographic region, but instead, for a universal appreciation of taste, technique, and technology.

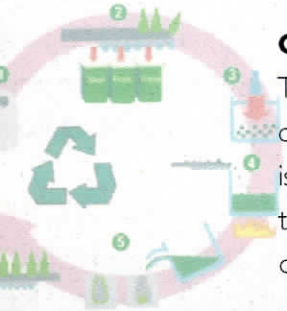
patterned zones:
farmed lands in relation to lake proximity

moisture zones:
microclimatic effects of lake to crop location

land patterning

"Architecture is essentially an extension of nature into the man-made realm, providing the ground for perception and the horizon to experience and understand the world." -Juhani Pallasmaa

A sequence is an arrangement ordered by precise occurrences. Behavioral sequences determine moments of interaction, while narrative sequences employ human interaction as a vehicle within a complex spatial experience. A series of sequential actions is a cyclical process, understood not simply by individual units alone, but as a unified whole.



Overlapping Sequence:

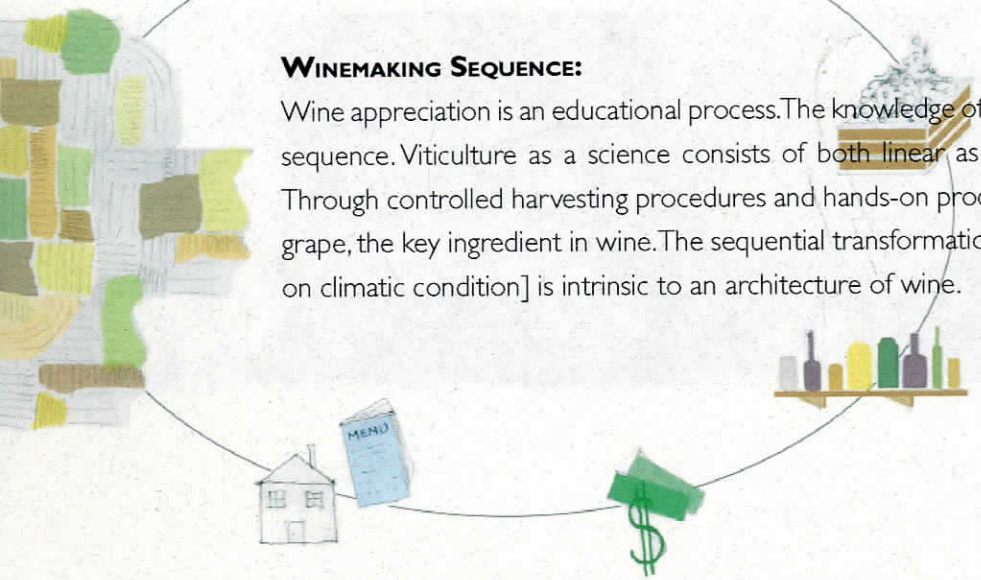
The recycling process is one of extraction and melding. The useful elements of a product are broken down into their constituent parts and reconstructed, to be used in the future. Combining static materials to produce a dynamic commodity is similar to the way in which an architectural program of agricultural production can be understood. A path of discovery through such a sequence enables the observer to acknowledge moments already past while focusing on the current ongoing activity.

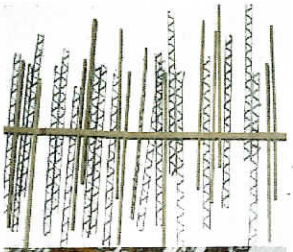
Linear Sequence:

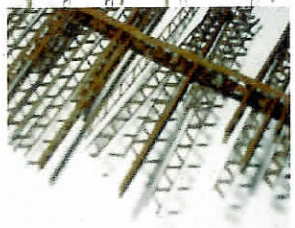
A linear sequence suggests operations that have a definite beginning and end. The cooking process is one in which each action is completed before starting the next and it is necessary to follow an outlined procedure to produce one's desired result. This additive process is one that requires particular skills, utensils and patience; the success of the undertaking can be appreciated instantaneously by few, or over time, by many.

Winemaking Sequence:

Wine appreciation is an educational process. The knowledge of its cultural evolution is equally as important as its production sequence. Viticulture as a science consists of both linear as well as overlapping sequences throughout its production. Through controlled harvesting procedures and hands-on processing techniques, the vintner is constantly manipulating the grape, the key ingredient in wine. The sequential transformation of solid to liquid form of this element [directly dependent on climatic condition] is intrinsic to an architecture of wine.







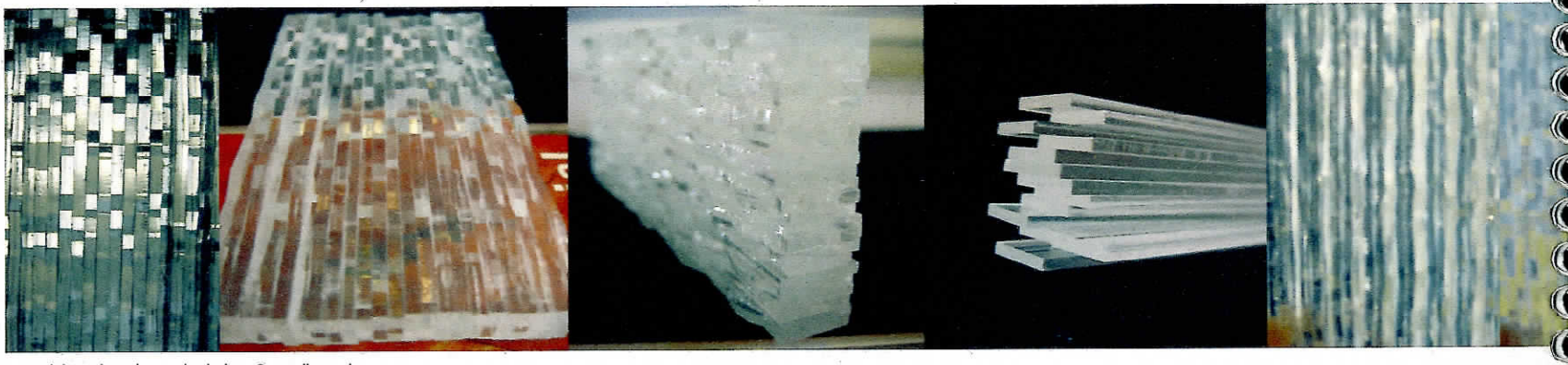
"Architecture has sensuous components. It uses the images of places and spaces to which we have access, which we remember. In other words: thought travels through a specific space, which contains traces of place and architecture, traces of wear, of use, of dwelling...harmony exists between work of nature and the work of man, the interp between density, lightness and void, between sounds and smells, light and shade, materials and forms..."

-Peter Zumthor

To perceive, or recognize sensory stimuli based mainly on memory is to acknowledge a change in one's surrounding These changes affect human sight, sound, smell, touch, and/or taste. Character judgments take place in the observer, a result of his/her perception of the physical properties of the landscape, filtered through attitudes that result from th accumulation of education and experience.

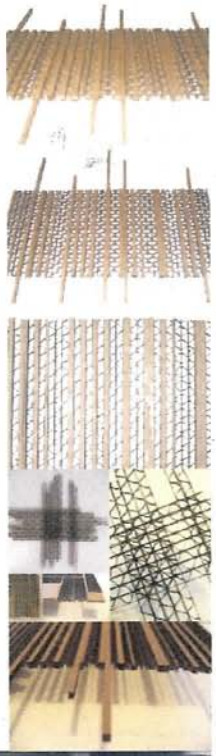
PERCEPTION OF MATERIALS:

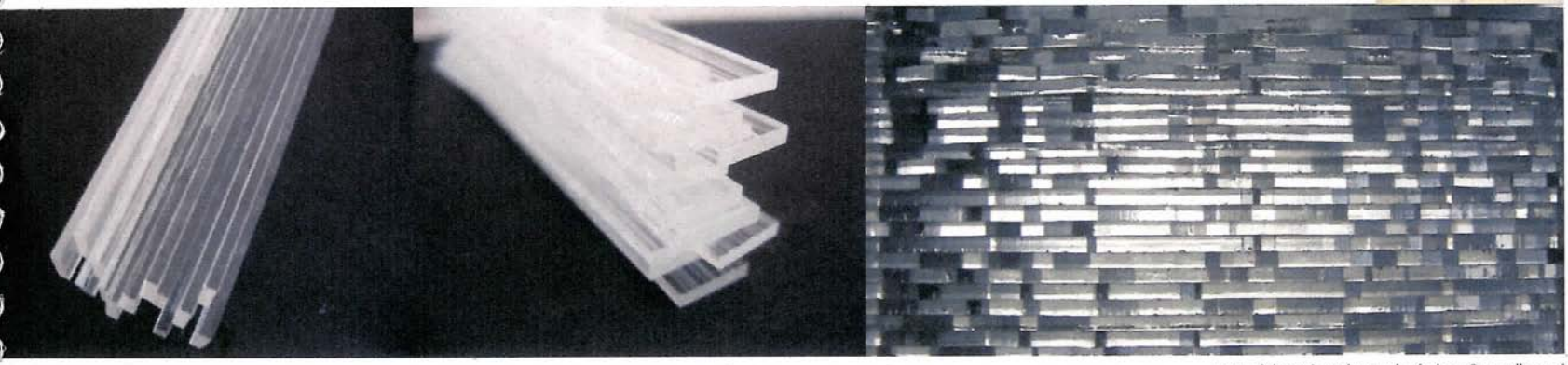
Materiality is crucial to a successful insertion of architecture within the landscape. The architectural experience has le to do with the beauty of innovative materials than with how they operate and engage the senses. The idea of an identit of materials and surfaces derived from the wine process itself encourages visitors to actively seek an understandin of the tactile qualities of wine. Ultimately, qualities of texture, density, transparency, and scale combine to establish interdependencies and reciprocal relationships within a facility for wine production, consumption, and appreciation.



material explorations: plexi glass & cardboard

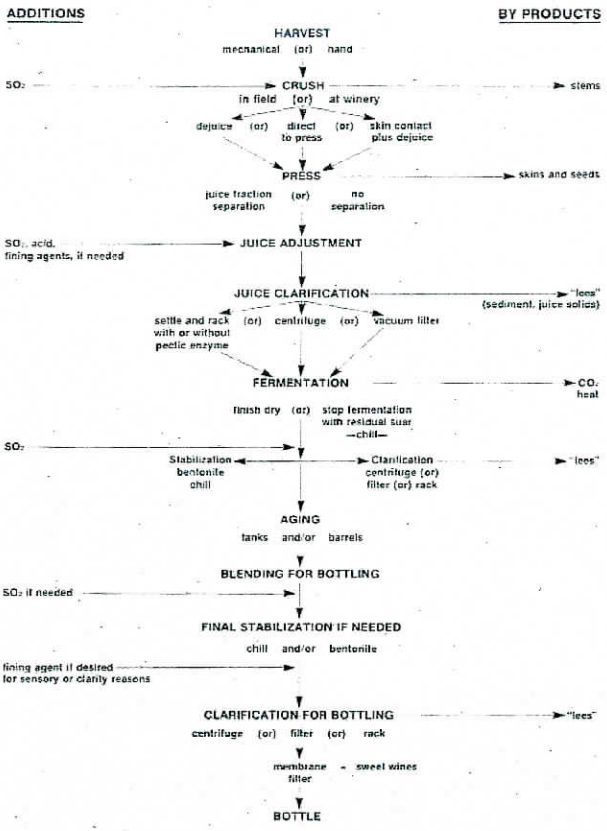
The material qualities of glass and cardboard when stacked, layered and overlapped allow for multiple spatial readings. As integral materials to the production of wine, their use determines the quantity of light being filtered through a "site"; the bottle acts as a site for containing wine, just as a winery acts as a site for producing wine.





material explorations: plexi glass & cardboard

[Operations in table wine production]



"The experience and memory of humankind are laid down in layers in the physical environment, concretely and graphically."
-Aldo Rossi

To transform is to alter; humans have a great capacity to transform raw materials into a final product, traditions into a cultural phenomena, and divisive boundaries into inviting thresholds. Landmasses transform over time, enabling readings of stratification and occupation; nature's capacity to influence successive generations of society is visible not only socially, among economic trends and lifestyle changes, but physically, through the patterning of the earth's natural growth processes.

Transformation of Wine:

Wine is a metaphor for the process of transformation; the grape is in a constant state of flux moving through each step of development. The grapevine is a growing plant and when it is picked off the vine, it has been transformed. As the juice settles into storage barrels and tanks, it is aging and transforming in appearance, smell, and taste. All but the skins and the must of the grape get recycled, in order to produce the consumable beverage. An architecture that exposes this sequence establishes a dynamic, engaging quality for the visitor and vintner alike.

[harvest] [crush] [destem] [press] [fermentation] [tank aging] [barrel aging] [bottling]

Origin of Wine

The culture of wine has been and continues to be one of constant transformation and development of technique paired closely with technology. Wine is far older than recorded history, but stories regarding wine and its production have been handed down through the generations. In one of the first such stories, found in the Bible's Book of Genesis, one of the first things that Noah did after the waters of the great flood receded was to disembark from the Ark and plant grapevines. After reaping the fruit from his vines, Noah made the juice into wine and later enjoyed the new concoction with his son.

The initial act of wine emerging as a cultural global phenomenon began with societies raising and cultivating vines anywhere they would grow. As these societies moved and relocated, they took their vines with them to grow in different areas of the world. Now, vines can be found on every continent except Antarctica; some grew naturally, such as those found in the Americas, whereas others, such as the vines In Australia, had to be transplanted. As early as 1792 B.C., this early trade was documented in the form of written law when the Babylonian King Hammurabi included several punishments for dishonest wine traders, which later came to be known as the Code of Hammurabi. The fact that laws were made to govern the early wine trade industry illustrates the importance it had both socially and culturally as a commodity in society.

Exterior of a Pompeiian house showing what the Romans drank and how they stored it.

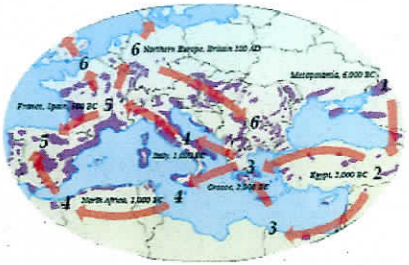
Wine's History

Wine begins in the East, with the beginnings of civilization itself. When the first planned cultivation of grapes may have occurred 8,000 years ago, the area of Southwest Asia, now in the Southern Soviet Union between the Black and Caspian Seas, had climatic qualities different from those of today; it was most likely cooler and somewhat more humid. Historical geographers conclude that the Mesopotamians learned viticulture as early as the 4th millennium B.C. and that wine was exported from Babylonia to Egypt before 3000 B.C. Records exist in Egypt of vineyards dating back to 2900 B.C. Since the Egyptians were growing grapes and making wine by the beginning of the 3rd millennium B.C., they had imported the plants and acquired the knowledge to cultivate them. The Phoenicians, the intermediaries in this process of diffusion, were the group responsible for connecting the Eastern Mediterranean on sea and land. Wine was the drink of prestige and privilege in ancient Egypt; it was only consumed by the rich and the clergy. It is also clear from hieroglyphics that wine was used in religious ceremonies and buried with the dead. The drinking of wine had social implications in Egypt; if a young man

Pharoah Tuthmosis III of the 18th dynasty (1479-1425 B.C.) is shown making an offering of Nu jars filled with wine.

allowed a woman to take a sip of his wine, the couple immediately became engaged. Since Egypt is located in t desert, its citizens had to come up with ways to irrigate their vineyards. This development was crucial because the trade route that the Egyptians first set up with the Greeks, and later the Romans.

During the 3rd millennium B.C. wine consumption appeared during religious events, burials, and festiv on the island of Crete, as did the field of viticulture itself. Contact between the Minoans of Crete and t Mycenaeans of Greece transported Cretan practices to the Greek mainland, including religious rituals a practices; during the 2nd millennium B.C. viticulture and the use of wine diffused throughout the Greek peninsu With the expansion of the Greek empire, their sphere of influence extended westward along Mediterranea shores; since wine had become such an essential ingredient of their culture, it spread along with them. The millennium B.C. witnessed this expansion, as Greek settlements were found from North Africa to Iberia. Duri the 8th century B.C. the Greeks entered Southern Italy and established their empire and assisted in initiating t Sicilian exploration into the viticulture industry.



Early movements of the vine from Mesopotamia in 6000 B.C. to Britain in 500 B.C.

The diffusion of viticulture within Western Europe was substantially a Roman achievement, but it was n simply a matter of continuing the course that the Greeks had set. The Etruscans knew viticulture and inhabit Tuscany before the Greeks did. During Roman times, wine became a mainstay of society, and viticulture a cru element to agriculture of the time. While Rome's domestic wine industry matured, the Roman Empire absorb most of Western Europe, and viticultural practices were able to spread like never before. Among Rom innovations were the use of wooden barrels for aging wine, a major advancement. The Romans complet the westward spread of Vitis Vinifera by establishing vineyards and organizing viticulture in the Rhone Val Bordeaux, Burgundy, Loire Valley, Champagne, and the Rhine and Mosel valleys. Thus, the viticultural map Europe emerged, with the location of the vineyards having been determined by principles of accessibility, rath than soil and climate. Eventually, interregional trade of wine developed in Europe, allowing its river system become a crucial factor. Wine was then transported by riverboats in wooden barrels - the first introduction such a system seen within the viticultural industry.

A 14th century Italian manuscript showing the cellarmaster examining the clarity of the wine, while his guests enjoy the wine right out of the bottle.

Out of the Dark Ages, which followed the fall of the Roman Empire, the medieval period began emerge. As expansionist monasteries cleared hillsides and built walls around nearby fields, the Church came

be associated with wine – not only as the Blood of Christ, but also as a symbol of luxury and comfort in the world. Cathedrals and churches, and the multiplying monasteries mostly, owned or created most of the vineyards at this time. Throughout the 16th and 17th centuries however, tariffs, treaties, and other barriers began to impede the flow of wine from vineyard to market. Various conflicts during that period halted or dramatically slowed trade patterns; viticulture however suffered minor setbacks.

Several technological innovations were introduced during Europe's time of political turmoil, therefore allowing viticulture to continue to progress significantly. The major innovation of the time involved the storage of wine. In Europe, during the Dark Ages, the wooden barrel came into general use and barrel making improved. Then, in the 15th century, the art of glass blowing and bottle making, dormant since Roman times, revived. The first bottle shape resembled a carafe or bell-shaped decanter, similar to that of the old Roman earthen jugs. After some experimentation, the first true wine bottles came onto the market, probably in the mid-17th century. This achievement, by English glass blowers, gave new value to the cork as a means of closure. By the end of the 1700's, a rough version of the modern, high-shouldered Bordeaux bottle had appeared.

Oak barrels used in the aging of wine; the two major types of white oak used are French or American.

Up to the end of the 17th century, wine was in the unique position of being the one and only wholesome and storable beverage; water was normally unsafe to drink in most cities, ale without hops went bad and there were no spirits or other drinks to be had. This popularity continued through to a series of crucial developments that began soon after Columbus arrived in America. One of Hernando Cortes' captains is credited with planting America's first vineyard in the highlands near Parras de la Fuente, 200 miles west of Monterrey. By the middle of the 16th century, the newly transplanted vines were a success among the lands of the New World. Viticulture developed slowly around the missions of Southern California, while also diffusing northward. During the 1850's California viticulture grew rapidly; individuals chose to start their own vineyards and bottling facilities.

Along the East Coast, viticulture actually predates that of California and the West. French Huguenot settlers in the vicinity of present-day Florida made the first wines in 1560. These early efforts were not successful however, since the vines could not withstand the diseases and harsh temperatures affecting them on the Eastern coast. The answer came in the discovery of the crossing of two vines: the labrusca and the vinifera. The success

of this vine crossing led to the development of other varieties and during the 1st half of the 19th century, the vineyards of the East spread into the Midwest. In the 1850's, the Ohio River came to be called the "Rhine of America", a phrase that can be seen as a recollection of European culture within American agricultural tradition.

In 1868, Phylloxera was identified as the work of a tiny insect that proceeded to kill or damage hundreds of acres of vineyards. While the disease and its devastation mushroomed, a solution was finally found – the vineyards utilizing prior grafting techniques were healthy and pursued even further to re-establish what was once the booming viniculture industry.

The 20th century saw two revolutions in the world of winemaking: the first scientific, the second industrial. The practical significance of Pasteur's science was just proving effective; fermentation was no longer a mystery but a process that could be controlled. However, the true revolution came with refrigeration and the ability to cool the fermenting must. The modern world of wine began in the 1960's, with the almost simultaneous spread of new wineries in California and Australia and the launch by E.J. Gallo of cheap table wines to cater to a whole new public. The great discovery of the decade was that French oak barrels could give wines from very different locales more than a passing resemblance to the "classics" of France. No single factor did more to close the gap between France and its many imitators.

The 21st century has the greatest supplies of good wine from more sources than the world has ever seen. The ever-present danger of a global village is that marketing takes over from the vintners. Marketeers' advice will flood the market with the latest wine trends and tastes from the year before. On the other hand, the world's wine drinkers are slowly taking more interest in what they're drinking. Quality wine is gaining at the expense of table wine. As consumers learn more about wine and their own tastes, they are prepared to spend more, even if it means drinking less. Consequently, the worldwide diffusion of viticulture still continues as new lands are opened to viticulture in the New World as well as the old. Some of the world's more noble wines are produced in regions where viticulture was just taking root two centuries ago. The sequence of events that began in Southwest Asia thousands of years ago is far from ended.

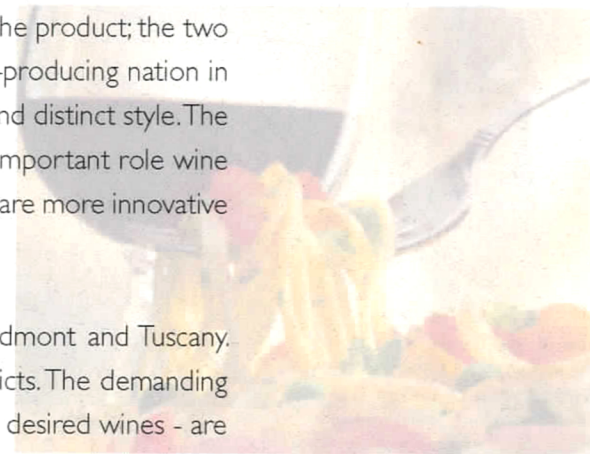
Culture + Place Identity of Wine

As wine has evolved and transformed over time, its original elements, cultivation techniques and methods of consumption have transformed as well. These transformations are due to the culture and geographical location that it is developed or utilized in. The four regions that will be discussed are: Italy, France, Germany, and America. These cultures have embraced wine, yet they each have their own approach to the beverage, its cultivation, and its use in cultural society. The transformations that wine has undergone in order to remain prevalent among various world markets have heightened its appeal within a greater audience, yet lessened its Old World status when it comes to appreciation of such a sensually specific product. The American cultural view of wine is one of a drink that is enjoyed at significant ceremonial events or on the flip side, simply to lose one's inhibitions; there is no respect for the process or tradition associated with the artifact. The entire sequence of cultivating the vine, converting the grape into a liquid state and respecting the element of time as fermentation and aging are considered – the continuous process - has been lost among the various alterations wine has witnessed throughout time.

A traditional style Chianti bottle, known as a fiasque - bulbous at the bottom and enclosed in a basket; these bottle shapes are still found in Tuscany.

Italy

"The true genius of Italy lies in spreading a feast. In the great Italian feast, wine plays the chief supporting role". When one envisions an Italian meal, undoubtedly, a bottle of Chianti wine is conjured up with that vision. The relationship between food and wine in Italy is one that defines their cultural stance on the product; the two go hand in hand. Italy's foremost agricultural industry is grape-growing. As the largest wine-producing nation in the world, Italy comprises many individualistic wine regions, each with its own local grapes and distinct style. The invading Greeks called it "Oenotria", the land of wine. That alone suggests what a centrally important role wine has played in this part of the world since the very earliest civilizations. Bottle and label design are more innovative here than anywhere else in the world.



The two regions most well known for producing traditional Italian wines are Piedmont and Tuscany. Piedmont, located at the foothills of the Alps, is one of Italy's very best wine-growing districts. The demanding Nebbiolo grapes, from which Barolo and Barbaresco - two of the world's greatest and most desired wines - are made, thrive almost only in Piedmont. Tuscany, the most significant part of Italy in quality wine terms, is the home of Chianti and Chianti Classico, in which Sangiovese grapes with their fullness and finesse prove brilliant. Tuscany

Italian culture brings together food, wine and social gathering on an everyday basis.

exists in the minds of Italians as a cultural gem in the center of the country. In addition to the culturally rich older cities of Florence and Siena, the rolling landscape of olive trees and vines is one of the best loved on the European tourist circuit.

While France takes a backseat to Italy's title of most significant wine-producing country in the world, wine is an integral part of everyday life to Italians. The average family consumes prodigious quantities of wine at both mid-day and evening meals, as it is a vital ingredient in traditional cookery.

France

For centuries, French wine has served as the epitome of wine. Even today, as wineries claim their wine is made in the "old-world" style, they are referring to French style winemaking. The culture of wine in France has been influenced by the styles and techniques of many countries. Since it has played a role in so many wars, including World War I, World War II and the Hundred Years War, France has had access to the ideas and methods of all the other countries with which it has had contact, allowing a proliferation of cultural exchange. France is the undisputed "mistress" of the vine; the originator and producer of more, and more varied great wines, than all the rest of the world.

The Alsatian wine master typifies the importance of tradition in the border region of Eastern France.

When comparing cultural evolutions with respect to wine, it is logical to start with France for two specific reasons; one is of a historical nature and the other concerns quality control. "The viticultural history of France is still the template for premium wine production wherever in the world individual grape growers and winemakers are seeking to make great wines – wines that are expressions both of their environments and of the personal passions and philosophies of those who made them." Here, the reciprocal quality of nature's capacity to grow rich vines and the human capacity to endlessly nurture them stands out. With concerns of quality being critical to the production of a brilliant bottle of wine, France established a control system, the first in its kind, with the concept of protecting the reputation of its best wines by producing them within tightly drawn regulations.

The two regions most well known for producing "old-world style" French wines are Bordeaux and Burgundy. Burgundy is not the name of one big vineyard, but the name of a province that contains at least three of France's best; it arouses the most passionate controversies within French wine connoisseurs. Wines from this region were traditionally seen as a cerebral, contemplative wine, viewed in stark contrast to those produced by the Bordeaux region.

Occupying a position at the pinnacle of world winemaking, the grand chateaux of Bordeaux produce fine red wines and sweet whites in a landscape that could not have been better designed for growing vines. Drainage is extremely important, so it is soil structure, helped in many cases by a slight slope, that holds the key to wine quality, and therefore grants the Bordeaux region of France such pristine status. The nearer a vineyard is to an effective drain, the drier the subsoil will be and the deeper the root will go. There is an ancient Bordeaux saying that "the vines should look at the river" - this explains the region's success as wine production is concerned.

Germany

Germany's wines are the most misunderstood in the world; when all regions are evaluated and compared Germany breaks all the rules regarding the needs for successful winemaking. Despite this geographic anomaly, many experts say Germany makes some of the best wine in the world. Many vineyards are on land unfit for agriculture: if there were no vines, there would be forests or bare mountain. Geographically, Germany's famous wine regions hug the river Rhine and its tributaries along the southwestern borders. Their chances of producing great wines are slim, yet on occasion they do, and no one, anywhere, can imitate them. Their secret is in the balance of two typically unfashionable ingredients: sugar and acid. The exact combination of the two has created a great art in the wine industry. German wines are far lower in alcohol than say those of Italy or France, however the sweeter tasting wines are what have propelled its status to where we regard it today.

This sign, the Royal Seal, marks the entry to a Rhineland vineyard.

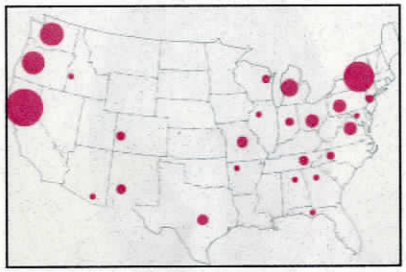
Germany's sweeter wines are best enjoyed, unlike most wines, alone rather than with food. However, rather than being seen as a positive consideration, this can be a commercial handicap to the product resulting in growers making far drier wines in order to keep up with market demands. These dry wines are simple table wines, and are successful only recently due to changes in German cultural affinities.

More specifically, in addition to the natural phenomena affecting the wine's sweetness, a particular winemaking technique also plays a part in giving German wines their sweet flavor. The vintner reserves some of the unfermented grape juice, called Sussereserve. Once the wine is made and the yeast will no longer ferment additional sugar, the Sussereserve is added back into the wine. This juice raises the sugar content and lowers the alcohol content.

Main wine regions always have consistent coloring among their bottles; the Rhine bottles are brown and Mosel are green.

Another accidental discovery gave Germany one of its most distinctive wines. In 1775, the Abbot of Fulda, who had the personal responsibility of ordering the harvesting of grapes, was attending a very important church conference. The conference took longer than expected, and the monks back at the Abbey began to watch anxiously as the grapes started to rot on the vine. Finally, they sent a rider to get permission to harvest the fruit. By the time the rider returned, they feared the crop had been lost, but they harvested them anyway and made them into wine. They were surprised that it became one of the best wines they had ever tasted; it was sweet, rich, and complex. They called it Spatlese, or "Late-Picked", and the technique of handpicking grapes with what has become known as "Noble-Rot" continues to this day.

America



This map shows the amount of wineries as well as the acres of vineyard per state.

Enthusiasm and willingness to experiment has brought great success to the winemaking states of North America. Today, the United States is the world's most important producer outside Europe, with only France, Spain, and Italy making more wine. Almost wherever land was colonized, the European settlers experimented with vine growing and winemaking, especially in New York, Virginia and New Jersey. Ever since the development of the railroads, grapes and wine have been shipped from viticulturally successful states, particularly California, for blending and bottling in less fortunately situated wineries.

Wine has performed a variety of roles in the social American context: promoting communal bonding, fostering social interaction through celebratory events, and affording individuals the sense of directly communicating with divinity. Therefore, the consumption and appreciation of wine has gradually given rise to a distinctively American "wine culture". The word 'culture' is meant to include the words, ritualized behaviors, and ceremonies that express a people's understanding of themselves and the world that surrounds them. A culture provides individuals with patterned ways of thinking and acting, and may structure a group's experience of the world; this is clearly the case with a culture of wine. One example of this increasing presence of 'wine culture' is the fact that wine festivals have sprung up from the Atlantic to the Pacific coast, celebrating American wines. Agricultural festivals are an ancient tradition; these festivals symbolize America's growing enthusiasm for celebrating fine foods and wines together. In addition to the emergence of wine festivals, small tasting groups have sprouted up around the country. Throughout the continent, a trend is becoming discernible: to produce wines that will be appreciated outside their regional context, while still expressing their local origins.

Process + Wine

Wine as a sequential process is crucial to its success. The process of uncorking and pouring the wine out of a dark bottle into a clear glass completes the complex development of wine cultivation and manufacture. The winemaking process can most easily be understood when broken up into four distinct phases. First is the biological phase, during which grapes grow and ripen. Next is the enzymatic phase, called fermentation, when microorganisms are doing most of their work. The third phase is the clarification stage, when small particles in the wine settle by gravity's force. Fourth is the chemical or aging phase, during which various components of the wine combine with oxygen or each other to form new substances. These four phases occur in the given order, but there is often some overlap.

process

OVERLAPPING PHASES

Grapes are the most important fruit crop grown in the world, exceeding the quantity of all other fruits combined; they have been harvested for winemaking since prehistoric times. The high sugar content of the grape is one reason they are such a popular fruit. Grapes provide a multitude of raw materials within their skin, for a wide range of wine types; they contain fruit acids, minerals, and other substances that make them nearly ideal host sites for yeast fermentations producing wines. Tannins from grape skins retard the oxidation of wines and grape flavors last longer than do most other fruit flavors.

Grapes belong to the botanical genus Vitis which includes two subgenera: Euvitis (true grapes) and Muscadinia. Euvitis grow in bunches and are referred to as "bunch grapes", while Muscadinia varieties grow as separate berries. By far the most important species of grape is Vitis Vinifera; this Old World grape is the basic component of most wines made today. The United States has more different native species than any other country. Several native American species are parents of hybrid grape varieties. Within a cultivated species, such as V. Vinifera, there are many varieties, such as Chardonnay or Cabernet Sauvignon; each variety has distinct fruit and vine characteristics.

The anatomy of the grape is vital to an understanding of the intricacies of wine's sensory qualities. Since the grape produces the wine, its components are crucial. The grape is attached to the bunch by a short stem, and the berry itself has three main elements: the skin, the pulp, and seeds. The proportions of these elements vary depending on the species being studied; as an average, the pulp constitutes 70% of the weight, the skin as much as 20%, the seeds about 5%, and the stem about 3%.

Brush What remains attached to the stem when grapes are destemmed at the winery, or knocked off the bunch during mechanical harvesting.

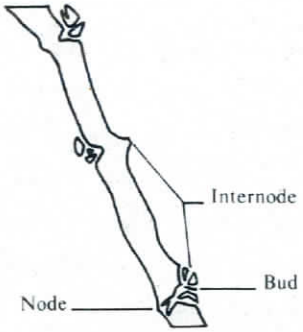
Stem (or stalk) As grapes reach full physiological ripeness, stems turn from green and fleshy to brown and woody. Stems can make a wine taste tart and astringent.

Pulp (or flesh) This is wine's main ingredient by volume, containing grape sugars, acids, and, mainly, water. The flesh of almost all wine grapes is this grey colour.

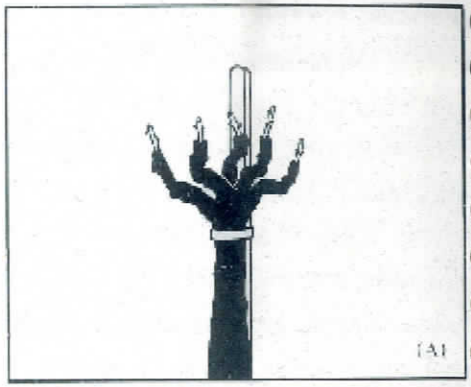
Pip (or seed) The number, size, and shape of pips is different for different grape varieties. All pips release bitter tannins if crushed.

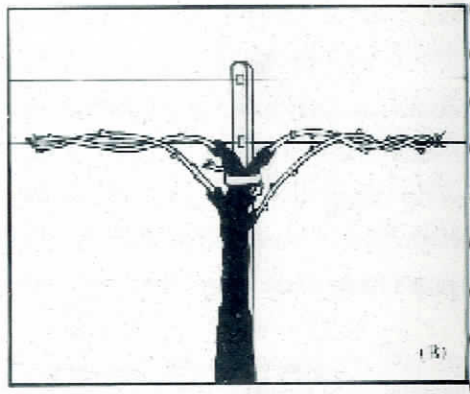
Skin The most important ingredient in red wines, containing a high concentration of tannins, colouring matter, and compounds which determine the eventual wine's flavour.

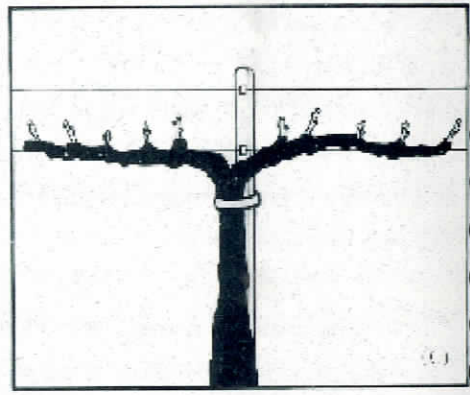
Cross-section of a Pinot Noir grape towards the end of the ripening process.



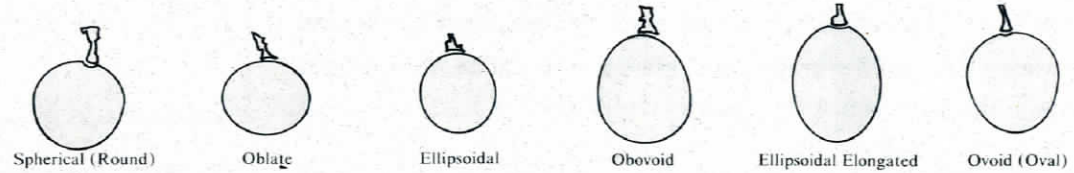
Main features of the vine.



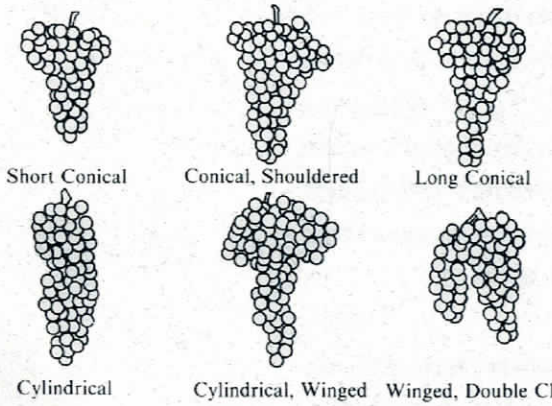




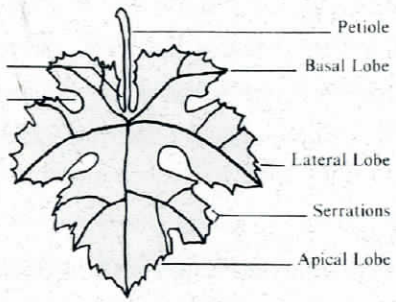
Traditional head-pruning techniques: spur growth (A), extension of canes over trellises (B), interweaving of lateral growth with permanent trellis wires (C).



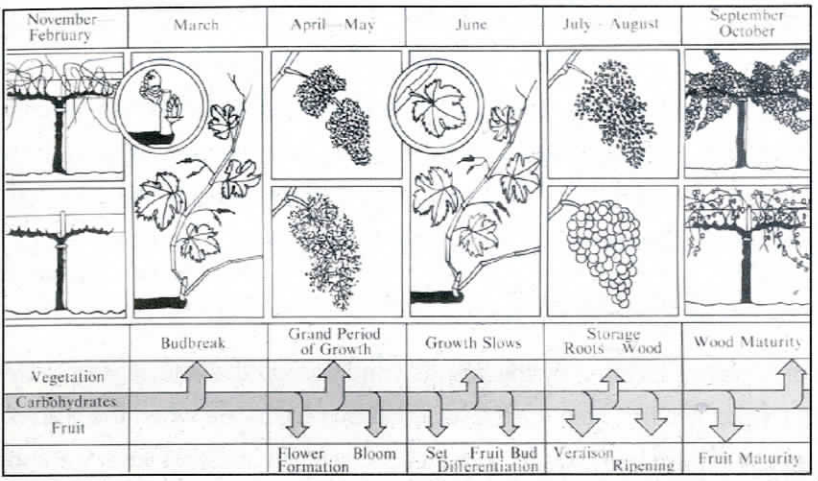
Variations in grape berry shapes.



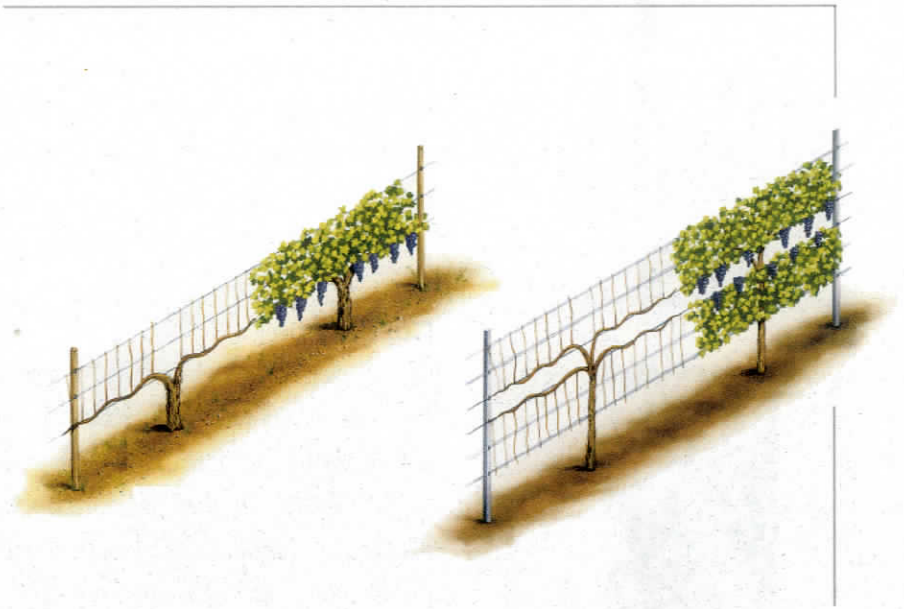
Common grape cluster shapes.



Typical grape leaf with five lobes.



From budbreak in March to harvest in September, frantic growth occurs in both wood and fruit.



Vine training systems are necessary to spread out and control the canopy of many of the vigorous growing vines. In the left illustration, the vine is trained along the bottom one of two or three wires. The upper wires support new growth and foliage, the lower one the fruit. In the right illustration, grapes and leaves are as fully exposed as possible to the sunlight.

Pinot Noir

Riesling

Syrah/Shiraz

Cabernet Sauvignon

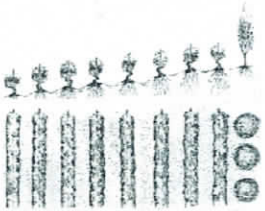
Chardonnay

Merlot

Sauvignon Blanc

Gewürztraminer

Sémillon



Ideal vineyard layout with vines running north to south to allow maximum sunshine to reach the soil.

In commercial vineyards, the spacing between rows is often 10'-12', which allows room for normal farm tractors, and the spacing between vines in each row is 6'-8'. On an average, there are about 600 vines per acre. Depending on the grape varieties, the climate and other conditions, the average vineyard can produce between 1/4 and 1 gallon of wine per vine. The four factors having a significant effect on grape quality are: climate, variety, cultural practices, and soil. Weather is one of the greatest variables in winemaking. Vinifera varieties are most prolific with rainy winters and long, dry, warm summers. Many of the world's greatest vineyard regions are located near large bodies of water, which moderate temperatures either too extreme hot or too cold.

Cultivation

Winemaking consists of a series of decisions dictated by the grapes' condition on the vine, as well as by the style of wine the winemaker decides to make. The first step for the winemaker is to decide when the grapes are ready to be picked; these harvest decisions must be made in conjunction with the weather forecast and grape maturity. As the grapes ripen, sugar increases, color changes, acid is metabolized, synthesis continues, and the grapes soften. Next, the winemaker decides what time of day to pick. In hot climates, grapes are generally picked either at night when it's dark or early morning in order to deliver the grapes to the winery as cool as possible. The majority of harvest season for both red and white wines occurs during the fall months of early September through to the end of October.

Harvesting by hand is slow and labor intensive but allows for choosing the best grapes.

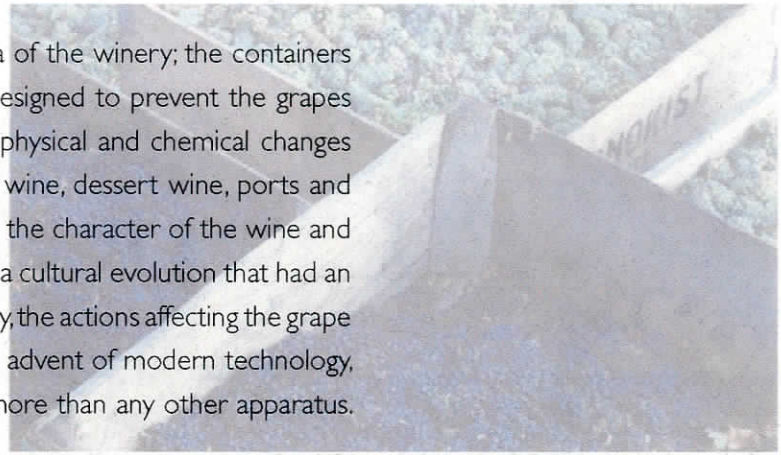
The machine harvester is a vital part of the modern wine revolution.

Machinery is used increasingly in the vineyard, not just for picking and pruning but also for lifting wires and the vine canopy. However, the greatest vines in the world are still picked by hand, since they can be snipped by the bunch, rather than shaking the grapes and collecting them individually, and the pickers can make intelligent decisions about the fruit they're picking. Grapes smashed during picking are subject to oxidation before being delivered to the winery; this is another benefit to hand-picking, since this specific problem is usually avoided with the care and experience utilized by grape-pickers in the fields. However, mechanical harvesting is occurring more frequently in larger commercial vineyards. This harvesting technique provides advantages in cost and speed and when properly done it can provide relatively high-quality grapes for winemaking.

Different species of grapes mature on the vine at different times, but vinifera mature in an evenly spaced sequence that allows the winemaker to have tanks available as each species is harvested and ready for

fermentation. "No matter the country or terrain, wine harvesting is a wild, frenzied affair mostly accomplished by skillful human hands." A skilled picker can harvest the amount of 2,000 pounds of grapes in a single day. In contrast to the hand picker, the mechanical picker can harvest 100 tons of grapes per day. Once the grapes have been picked, the final step of the cultivation process is to prune the vine. This is done in order to help increase sunlight to the grapes and also to reduce the amount of the fruit that the vine makes, increasing the quality of any remaining grapes.

Manufacturing

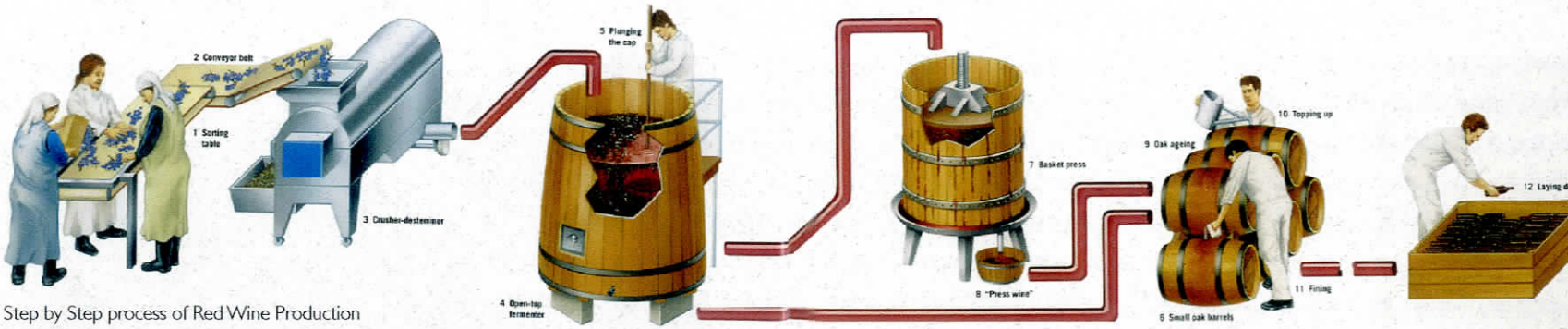


Once the grapes are picked, they are transported to the receiving area of the winery; the containers used in this step of the manufacturing process are usually small wood crates, designed to prevent the grapes from being crushed in transit. The processes of wine manufacture that induce physical and chemical changes in the grape produce six distinct types of wine; red wine, white wine, sparkling wine, dessert wine, ports and sherries. The subtle variations in producing each of the distinctive types establish the character of the wine and mold the solid grape into a liquid byproduct. The manufacturing of wine has been a cultural evolution that had an established sequence setup by early vintners and wine connoisseurs alike. Previously, the actions affecting the grape were performed by hand (picking/sorting) or foot (stomping), however with the advent of modern technology, this process has been transformed into one that utilizes electronic equipment more than any other apparatus.

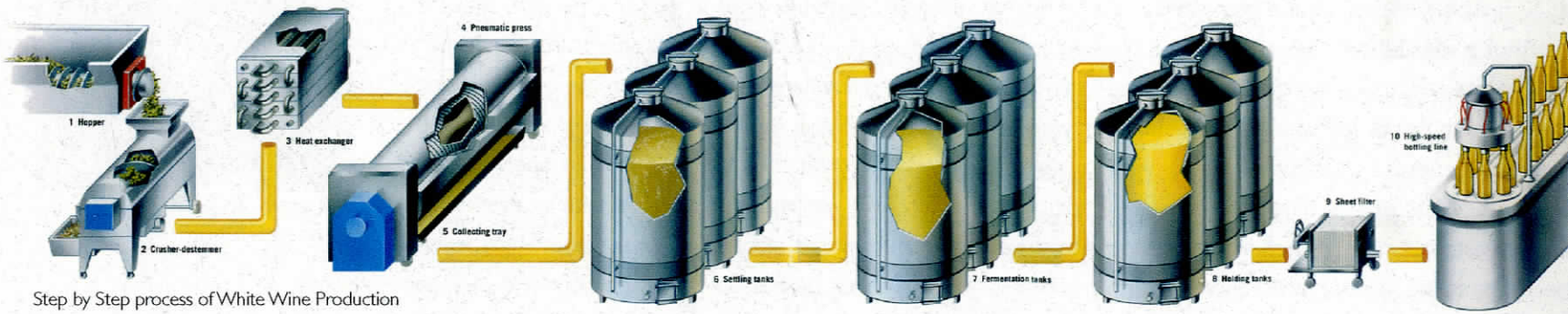
Red Wine

This first step in the manufacturing process for red grape varieties ensures the examination of each batch of grapes before they arrive at the crusher/destemmer. Hand-cut bunches of grapes are transferred from small containers to a sorting table. Any unripe, damaged or moldy grapes are discarded, then the conveyor belt carries the bunches to the crusher/destemmer where the stalks are removed and most of the grape skins are crushed. The grape must, including the skins for color, flavor, and tannin, is then pumped into an open-topped fermenter, often made out of stainless steel. Traditionally, this machine was made of oak, concrete or even slate. Here yeasts naturally present in the atmosphere slowly set in motion the alcoholic fermentation. Sugar levels decrease as the level of alcohol rises and the carbon dioxide given off pushes up the grape skins and pulp to form a 'cap', protecting the must from oxidation. Next, the cap is plunged down or broken up by pumping the must over it to prevent its drying out. After the alcoholic fermentation is over and before all the sugar has been fermented, winemakers transfer the wine into small oak barrels. Any solids left at the bottom of the fermentation

vat are then transferred to a press, where the "press wine" is squeezed out and collected below. The wine is then aged in oak barrels for up to 18 months. Evaporation requires the barrels to be "topped up" regularly, and the wine will later get "racked" off its sediment, into a new barrel to aerate it and prevent any further buildup of solid pomace. After careful bottling, the wine is laid on its side in bins and stored for further aging within the bottle, being labeled and sealed just before being released for consumption.



Step by Step process of Red Wine Production



Step by Step process of White Wine Production

White Wine

White grape varieties are not sorted as red grapes are at the beginning of the manufacturing process; once picked off the vine, the truck transporting them from the field to the winery backs up and fills the hopper with bunches of grapes and some material other than grapes (leaves, for example). Inside the hopper machine, rests a large screw-shaped apparatus responsible for feeding the grapes into the crusher/destemmer. Within the hopper, grapes are crushed by rollers, then deposited below, into the crusher, housing a rotating cylinder. This cylinder is perforated with holes big enough to allow grapes to pass through, but not large stem fragments or leaves, then destems the fruit. The resultant mixture of grapes and pulp is then pumped through a heat exchanger to cool it down and slow the oxidation process; this assists in preventing any loss of flavor.

Pouring white grapes into destemmer right from the field.

The pulp is pumped into the pneumatic press, where a rubber membrane is slowly inflated, pressing the grape pulp against the perforated stainless steel cylinder but keeping the seeds whole as to not release their bitter oils. The juice is collected in the lower tray from which it is pumped into the stainless steel settling tanks enclosed in cooling jackets. The now much cleaner grape juice is pumped into temperature-controlled stainless steel fermentation tanks. The length of fermentation can vary from a few days to a month. The wine is then racked, becoming even cleaner, and put into holding tanks protected from oxygen. Next, it is stored at a low temperature until it's time to be shipped; it may have to be blended and is then cold-stabilized, chilled to almost 32 degrees Fahrenheit and subsequently refined. All commercial wines are filtered to remove any potentially harmful bacteria. Finally, the wine is then bottled by means of a high-speed bottling line just before being shipped, keeping storage costs low.

Sorting the stems, skin and must.

Sparkling Wine

Champagnes can always be considered sparkling wines, but sparkling wines are not always champagne. In the traditional method of making sparkling wines, a dry wine with slightly less than usual alcohol is placed in a strong bottle with a little sugar and special yeast. After the yeast has fermented the sugar, built up the carbon dioxide pressure and aged for a suitable time, it is removed, some sugar is added, the wine is resealed, and after some further aging, it is ready to be consumed. The quality of sparkling wine is determined by the variety of grapes used; 2 out of the 3 species of grapes used in champagne are red. The grapes are usually not crushed but pressed several times, which reduces both color and tannins in the must. Fermentation is usually performed

When done by hand, riddling takes about 8 weeks to complete.

at 60-68 degrees Fahrenheit. A second fermentation is then performed after allowing the wine to age for 8-18 months. A calculated quantity of sugar is added to the wine blend, then tightly filtered to clarify it and remove any bacteria. The yeast is removed from bottle-fermented champagnes by a process called riddling; bottles are placed neck down on special racks, at a moderate angle to begin with and later more nearly vertical. In many modern facilities, mechanical devices that tilt and vibrate the bottles have replaced this hand process of rotating the bottles showcasing the aspects of a cultural evolution of the consumption of wine.

Dessert Wine

The processes used to create dessert wines are what defines them. A distinct quality of many of the sweet wines created, is the presence of residual sugar, or sugar that is left over after the fermentation process. The grapes used for sweet dessert wine production are picked for their degrees of ripeness or overripeness and, after fermentation they can be infused with a sweet, nonalcoholic liquid.

Sweet German wines are made at the end of the growing season in Germany from grapes that were harvested late in the season. The later they are picked, the more time the grape has to accumulate and concentrate the sugars, making it that much sweeter. German wines always have a little more sweetness because of the addition of sussereserve. The sussereserve is unfermented grape juice that is added at the end of fermentation to add sweetness to a wine that is already high in acid.

Ports / Sherries

Port wine production in Portugal - the use of the body aids in its development.

Port is made by running off partially fermented wine, while it still contains at least half its grape sugar, into a container a quarter full of brandy. The brandy stops the fermentation so that the resulting mixture is both strong and sweet. Grapes for port wines are harvested in much the same way as those for red table wines except that more care is needed in handling them since they are usually very ripe. Treading is a means of softening and breaking up the grape skins in their juice so as to extract all their essences. The direct use of the human body, specifically, the naked foot, is the perfect tool for this, being warm and doing no damage to the seeds. Rhythmically stamping thigh-deep in the mixture of juice and skins is the traditional treatment for giving port its color and ability to last and constantly improve for many years.

Sherry wines are made by adding enough alcohol to a fairly neutral white wine to prevent bacterial growth, after which the wine is oxidized in a controlled manner. U.S. sherries have a range of flavors, depending on production methods. In the traditional Spanish "flor process" of making sherries, yeasts grow on the surface of wine in partly filled barrels, with some air contact. The surface yeast colonies often resemble flowers in shape and produce characteristic substances, which impart the distinctive aroma and flavor. The complex flavors of Spanish sherries also result from the blending and aging procedure called a solera system. Soleras, constructed from 132-gallon barrels holding 110 gallons of wine, vary in size, but usually involve 3-5 or more tiers of barrels. The youngest wines are placed in the top stage and once or twice a year, finished wines are removed from the bottom level. Available space at the bottom stage is filled with wine from the next higher stage, and wines from each level are moved down in the same way and distributed among all the barrels in the tier below. Soleras are housed in well-ventilated, above-ground storage buildings. Both water and alcohol seep through barrel pores, but in such a dry climate, the water evaporates faster, leaving the alcohol content to increase. This system of fermentation allows Spanish sherries to be considered among the most consistent wines produced in the world.

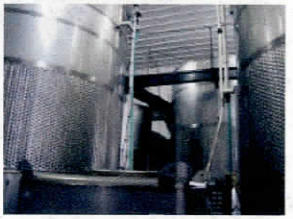
Typical Sherry production sequence.

Storage / Bottling

Once the wine is fermented, it needs to mature. Aging can take place in a bottle, a stainless steel tank or an oak barrel. The winemaker chooses the container very carefully because different qualities can be transferred to the wine as a result of the storage container used. The most common storage containers are oak barrels or bottles. Barrels are used for wines that will age for a long period, whereas bottles are used for wines that will be ready for consumption quickly.

After aging in oak barrels, most wines are filtered and bottled right away.

The process of barrel-making is one that used to be done by hand, over 100 years ago, but now employs machinery to cut the slats and assemble all the components. After the barrel is assembled, it's "toasted" or charred on the inside, according to the winemaker's specifications. Alcohol producers do this to add color and flavor to wine stored in barrels. Barrels come in different sizes; the smallest is 5 gallons, but winemakers usually use a barrel that holds 55 gallons. The size of the barrel influences the flavor of the liquid in the barrel.



Stainless steel is suited to rigorous temperature control and preserves the wine's purity.

Modern bottling equipment is designed to let as little air in the bottles as pssible.

When the wine is ready to age or to sell, the vintner bottles it. Bottles vary in size and shape depending on the region the wine is produced in; the most common size is 750 milliliters. Once the wine is bottled, the vintner needs to shield it from air. Cork is the preferred material for this purpose, being made from the bark of an evergreen oak tree. This spongy material has been used as a stopper for wine since the late 1600's; it has no effect on the wine, is quite easy to make, and is easy to remove. This material also has sensual qualities to it that can be applied to designed spaces throughout a winery; cork is a dense byproduct of cork oak bark, allowing it to be used for sound absorption in certain places, while providing an enhanced tactile quality if used on floors or various planar surfaces.

Shipping

Use of wooden crates for shipping purposes also may double as display in wine stores.

Wine can be shipped in wooden crates, cardboard boxes or any combination of the two, The structural qualities of cardboard are visible in the construction of boxes that serve to keep the wine bottles separate and stable. One of the benefits of shipping wine in such a way is its recycling capabilities after consumption. The containment of wine as a product showcases wood, glass, straw, cork, wire, plastic and paper in an evolutionary cultural transformation from the beginning of civilization where clay pots and jugs were used as containers, to modern times, where the enclosure system is multi-faceted and consists of a reading of constituent layers at varying scales.

Consumption

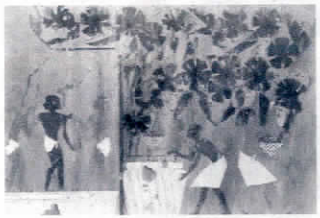
Wine is not a solitary drink. It is essentially sociable and one of the greatest pleasures it has to offer is the sharing of it. Consuming a bottle of wine involves a certain level of attentiveness, in order to make the experience complete. First and most importantly is temperature of the wine. Since our sense of smell is susceptible only to vapors, the object of serving red wine at what is known as room temperature, is to warm it to the point where its aromatic elements begin to vaporize. Tannins are much more obvious at low temperatures; the warmer a tannic red wine is served, the softer, more generous, and more evolved it will taste. On the contrary, some of the very sweet white wines are meant to be tasted at the coldest point; allowing them to pour very cold and then warm up slightly while being sipped encourages all their aroma and bouquet to be released.

The act of consuming wine brings people together.

The next step is to open the bottle. In most cases, this involves removing the foil and pulling the cork. Corkscrews are varied and can be designed in numerous ways. Finally, the wine drinker requires one last vital piece of equipment, the wine glass. Traditionally, white wines have been served in smaller glasses than red. The basic requirements of a good wine glass include having a stem and bowl that allows swirling without any loss of wine.

Religion [ritual] + Wine

The cultural connection between religion and the experience of wine drinking is hardly unique to the United States. There is no cultural tradition that goes back further in history. The use of wine probably started well before 4241 B.C.E., the year that the Egyptians began marking time with a calendar. The ancient world's practice of storing grapes in earthen jars caused accidental fermentation to occur with the changes in moisture and temperature. Wine established itself as the beverage of the gods and was always associated with religious feasts and libations offered to please the deities who controlled our fate.



Vineyard scene in Egyptian tomb from the time of Ramesses II.

Wine was vital to the ancient world's celebration of life. Wine also became the focal point of Greek social life and was lavishly praised as the fountain of civilized life and thought. In ancient Rome, as in Greece, most of the festivals that emerged as expressions of human celebration coincided with the most important phases of the grape-growing and wine-growing agricultural cycle.

Catholic priest offering wine during mass.

Wine is closely connected with the religious attitudes in Asia as well. In contemporary Japan, for example, rice wine (sake), is commonly placed on the family altar. Wine is intimately associated with rituals and ceremonies honoring the kami, or divine beings. Because of wine's association with the kami, it is often present at wedding ceremonies for the toasts that the bride and groom make to one another and is also used in ceremonies dedicating a new home or building. Throughout Chinese history, wine has been intimately associated with religious offerings. On Chinese New Year and other holidays, wine is offered to ancestors as a token of the indivisible union of family ties.

The biblical culture of Judaism was very positive about the joys and spiritual meanings of wine drinking. Wine was not a luxury in ancient Mediterranean culture, it was a staple of everyday life, drunk by all classes and ages. It became a central part of religious ceremonies; the Seder meal in Judaism and the Christian sacrament of communion both illustrate how fully the subtle pleasures of wine drinking became associated with the religious urge to find union with God and friendship with one another.

Friday evening Shabbat dinner with wine as an integral part of the meal.

The essence of "wine communication" is to communicate the romance and aesthetic delight of the sensory experience that comes with consuming a glass of wine. In his The Romance of Wine, H. Warner

Visual analysis: comparing color, clarity & viscosity

Allen poignantly describes the sensory experience enjoyed by wine drinking: "Wine indeed appeals to all the senses... Apart from its elusive bouquet and complex aroma, a great wine presents to the eye the joy of color and through the sense of touch flatters the palate and throat, not only with its refreshing sense of coolness and a grateful feeling of satisfaction due to its temperature and the fineness of its alcohol, but also with the incomparable softness of its velvety texture."

There is an intricate relationship between a culture and the language in which it is ordered and communicated. "Wine talk" has its own semantic structure. Various terms and phrases have emerged to denote the typical sensory experiences that are basic to our appreciation of wine culture. For example, particular and culture-specific phrases can be used to enhance the visual appearance of a wine [brick colored, cloudy, long legged, shades of amber]; its olfactory properties [fig aromas, blackberry and courant bouquet, rich on the nose]; its oral sensations [broad and soft on the palate, citrusy, but with great depth and an impressively long finish, smooth, with a crisp acidity and short finish]; and the wine's overall sensual qualities [unusual and seductive, a powerhouse red, lean and firm, youthful and earthy].

Examining the bouquet; analyzing the aromatic qualities of wine

The heart of wine culture, and what most closely distinguishes its religious qualities, is the ritual of tasting. The experience surrounding the taste of a wine and its creative processes is nurtured by a 'ritualization' of activity: the opening of the bottle, the period of expectancy when the wine is allowed to breathe, and each successive step of judging the wine's color, bouquet and viscosity all create a unique setting in which the individual ritually merges with the object of their attention. The event is for these reasons, exhilarating; "it unites our intellectual and experiential memories in ways that convey a sense of vibrancy and energy.

Tasting wine allows for a complete appreciation of the product

"The overt intention of celebrating the natural affinity of great wine and the fine arts also draws attention to the very real sense in which wine making is itself an art form. The selection of grapes, the harvesting process, direction of the fermentation process, and intuitive judgments concerning the blending and aging of wine all reveal the controlled creativity whereby a wine maker turns grapes into a product meant for aesthetic enjoyment."

While developing an appreciation for the process of wine and its culture, it is necessary to understand the language by which wine is described and evaluated. This diagram describes the senses stimulated by each of the four steps in the tasting process: viewing, smelling, tasting and extracting the vapors of the wine.

Vineyard Activity	Wine-Grower's Calendar	Winery Activity
pruning to assure maximum quality	January	constant supervision and analysis of maloactive fermentation
pruning continues; mend wires, posts, stakes	February	topping up space between barrel and wine surface
planting & grafting new vines / installing vine guards	March	bottling of wines designed to be drunk young
leaves develop and flowers produce new berries [75 day period]	April	racking: moving wine from one container to another
spraying against frost / berries set for new bunches [10-20 days]	May	prepare and assemble wine orders to be shipped
tying young shoots onto wires / cells develop [40-45 days]	June	rack fine wines again / turn bottles on shelves
spraying against pests & disease / variety pigmentation	July	bottling of fine wines in their second year
cell expansion and engorgement with fruit sugars	August	prepare winery for vintage
harvest / hire & organize pickers / picking machines & drivers ready	September	harvest / winemaking equipment & wine additions in place
fermentation [40-45 days]	October	punching down the cap of skins that have floated to the surface
vineyards become dormant / vine leaves turn yellow / sow any cover crops	November	fining (clarification) for red wines
vineyard cuttings for propagating young vines	December	early tastings of the new wines begin

This diagram illustrates the various activities the vintner must complete throughout the year outside among the vineyards (green) and inside the winery (red). The levels of activity vary and overlap according to season, allowing a possible blurring of interior/exterior boundaries as a design strategy.

"The interplay of art and nature, and of nature and culture, creates landscapes of infinite form, indicating the specific culture that produced them through style and architecture. Landscapes are cultural containers, historical storehouses and spaces of intelligible world." -Massimo Venturi Ferriolo

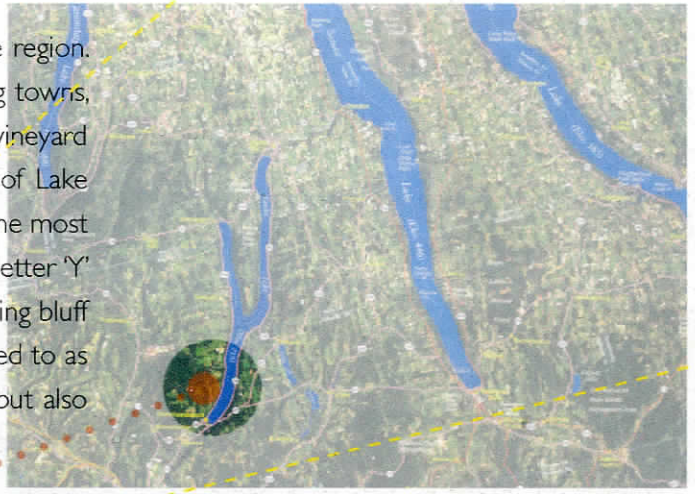
The landscape exists as a fact, independent of observers. Urban or rural, the continuity of the physical environment is broken only by major geographic elements or by the vision and motion limits of the observer. An inextricable aspect of place identity in architecture is the method by which a site is formed over time. The connection of earth as natural form and building as constructed form allows a reciprocal reading of the site to develop. As suggested by Carol Burns, "the notion of the constructed site implies that the resulting architecture is meant to be understood in physical terms; building and setting are seen to be shaped by obviously physical processes." An architecture determined by human activity is similar to a cultural language; actions inform the dialogue which begins to unfold between societal traditions and moments of exhange.

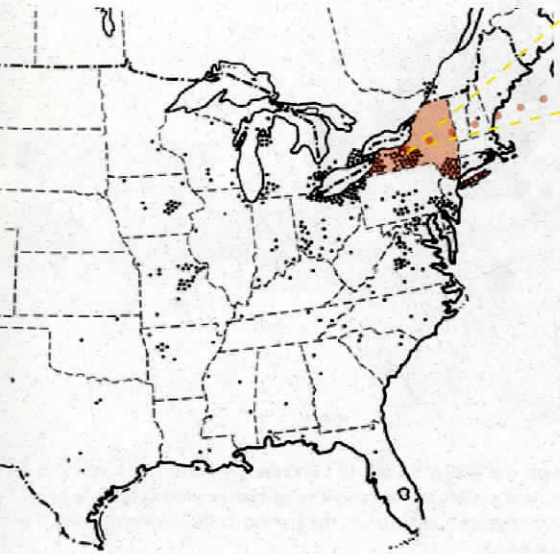
Inherent in a setting shaped by forces of nature, it is crucial to understand that every event and manifestation of the natural world is "design". An interdependency exists that should be understood and exploited as human intention is realized in the built form. The didactic manner by which a heavily contoured land speaks of transformation and an evolution of "place" encourages formal explorations into a history of the site.

Soil characteristics together with topography and microclimates form a mosaic on which the wine industry has been established in the Finger Lakes Region. The long, deep lakes have been described as enormous water "radiators", able to moderate the temperature near their shores year-round: radiating warmth in the winter and coolness in the summer. Located in the heart of the vineyard section of the Northeast, its banks are terraced with 12,000 acres of vineyards and checkered with grain fields and green forests. Hammondsport is unlike any other Lakes Country community; its wine cellars have allowed for an enriched way of life along Keuka's shores.

"The experience and memory of humankind are laid down in layers in the physical environment, concretely and graphically. Every new part exploits ancient forms, materials and ways of making." -Aldo Rossi

In the 1870's, the development of the grape industry brought a new prosperity to the region. Steamboats were needed to haul the grapes and wines into the ports and neighboring towns, making Hammondsport a vital port town along transportation routes in New York. The vineyard capital of New York State, Hammondsport, NY, is located at the southwestern port of Lake Keuka. Among all five major Finger Lakes, Lake Keuka is the western most lake, and the one most unique in shape. It is the only Finger Lake of irregular outline; it closely resembles the letter 'Y' and is the only lake known where waters flow into one of its branches, around the dividing bluff and continue flowing for 12 miles in the opposite direction. Keuka Lake has been referred to as the American counterpart of Lake Lucerne, Switzerland, mainly for its peculiar shape, but also because of its 60+ miles of shoreline, with coves, points, and bays dotting its edge.





"Every site is a unique intersection of land, climate, production and circulation." Carol Burns' interpretation of a respondent architecture that combines aspects of each of these conditions can be understood in the siting of a winery; not only does cultural enrichment occur at the scale of the town, but at the regional and global level as well. Wine making has been described as the most geographically expressive of agricultural activities. This characterization highlights the ensemble of environment and human factors that produces distinctive landscapes with viticultural activities; part of the distinctiveness is similarity. Vineyards are highly visible wherever they are, and a trained eye can easily identify the associated structures and technological equipment. The sloping waterfront landscape along each of the eleven Finger Lakes affords the opportunity to act as a place of exploration, reflection, commemoration, and celebration; their steep quality, which discouraged other commercial uses, provides a favorable microclimate for the vines. Vast resources along Keuka Lake and its surrounding valleys established Hammondsport as a fundamentally rich port town in comparison to its neighboring lakefront communities.

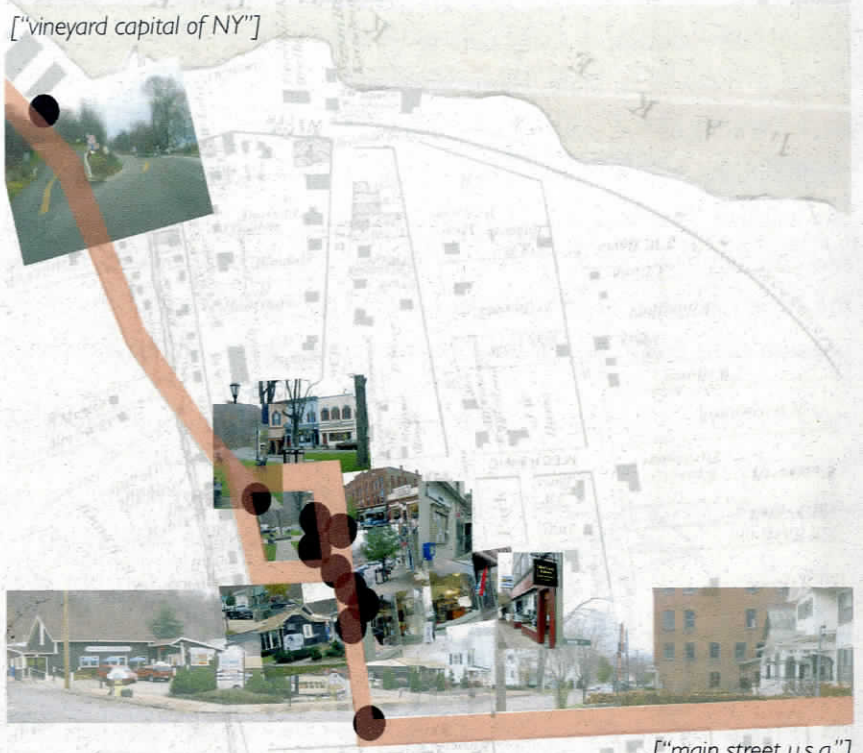
Hammondsport is the southern gate of the Finger Lakes country. The village of Hammondsport is situated at the base of Lake Keuka. Its history predates the beginning of the 19th century by four years, The first settler, Captain John Shether, chose a site for his home on the village tract on September 25, 1796; later a portion of his lands were passed to Lazarus Hammond. In 1825, after Hammond came to reside in the quaint village, there was talk of constructing a canal from Keuka Lake to Seneca Lake, making Hammond's Port the head of inland navigation. The land donated to the village is now the public square and the Methodist Park. From 1797 to 1825, the lands where the village is now situated were mostly used for farming purposes.

In 1825, the first store opened and soon afterward a number of businesses were established surrounding the public square. By the 1830's, the population of Hammond's Port was several hundred. In 1826, Richard Sheffield arrived, opened a tavern on the village square and had with him rootstock of several varieties of grapes from the Hudson River region. The Reverend William Bostwick who had arrived in 1829, made cuttings from Sheffield's grape vines and started the first vineyard in the region. From this small beginning, an industry blossomed. The grape interest then exploded, with 200 acres by 1860, 3,000 by 1870, 5,000 by 1879 and up to 14,500 acres of vineyards by 1889.

valley of h'port 1860

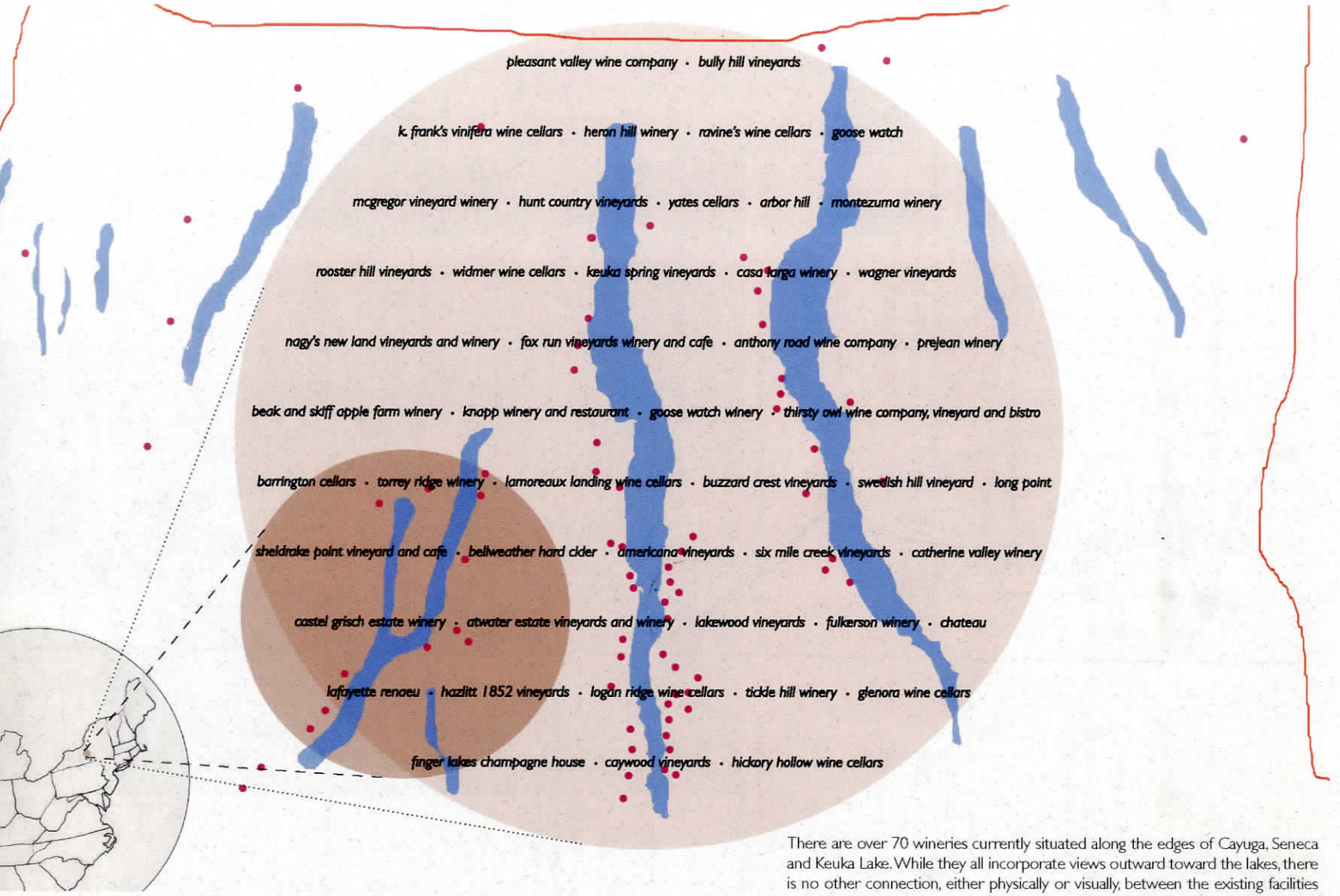
h'port main street 1880

view from west lake 1889



Arriving at Main St., passing through the village square to continue on Route 76 towards the vineyards, one gets a sense of the rural small town atmosphere of Hammondsport. Local village artists display their latest work at the Visitor's Center, while the gazebo in the center of town has various seasonal functions during weekends.

hammondsport, ny on keuka lake



There are over 70 wineries currently situated along the edges of Cayuga, Seneca and Keuka Lake. While they all incorporate views outward toward the lakes, there is no other connection, either physically or visually, between the existing facilities and the rich terrain they occupy that allows the visitor to perceive the process of winemaking as a reciprocal relationship: the human capacity to affect the dynamic motion of the earth, while nature has the capacity to engage our views on tradition, place and transformation.

As a site that was formed by glaciers, the Finger Lakes region has a layered history. Eduardo Arroyo's poem addresses similar issues of process + site that can be applied to an investigation of winemaking, particularly in relation to Keuka Lake's topography.

...something is born, something dies...but people *remember*...

...everything flows, and the memory of that strange amalgam struggles to survive *in the recollection of the landscape*...

...and men build *once more*, homeless nomads, mad architects, exciting places for the sedentary *written on the ground*...

...recognizing the reality of conditions *that may affect their transformation*...

...and letting the definitive re-distribution emerge on its own *as the fruition of the process*...

...steel and stone, wood and rich soil, all dead long ago, now revive, *mixed together in small transitable spaces apt for discovery* of frolic, intimate or collective in which one can just look or listen, or try to speak once more...

...and a flat estuary that vibrates with the mountains it envies...seven hills in the plaza landscape with raised structures as places *for contemplation and punctuation in the night*...

canandaigua keuka seneca cayuga owasco skaneateles

2100 ft 2000 ft 1700 ft 1500 ft 1300 ft 1200 ft 1500 ft 1500 ft.

15 M. 9⅓ M. 7⅔ M. 10 M. 7 M.

688 720 720 618 444 435 381 ft 710 ft 867

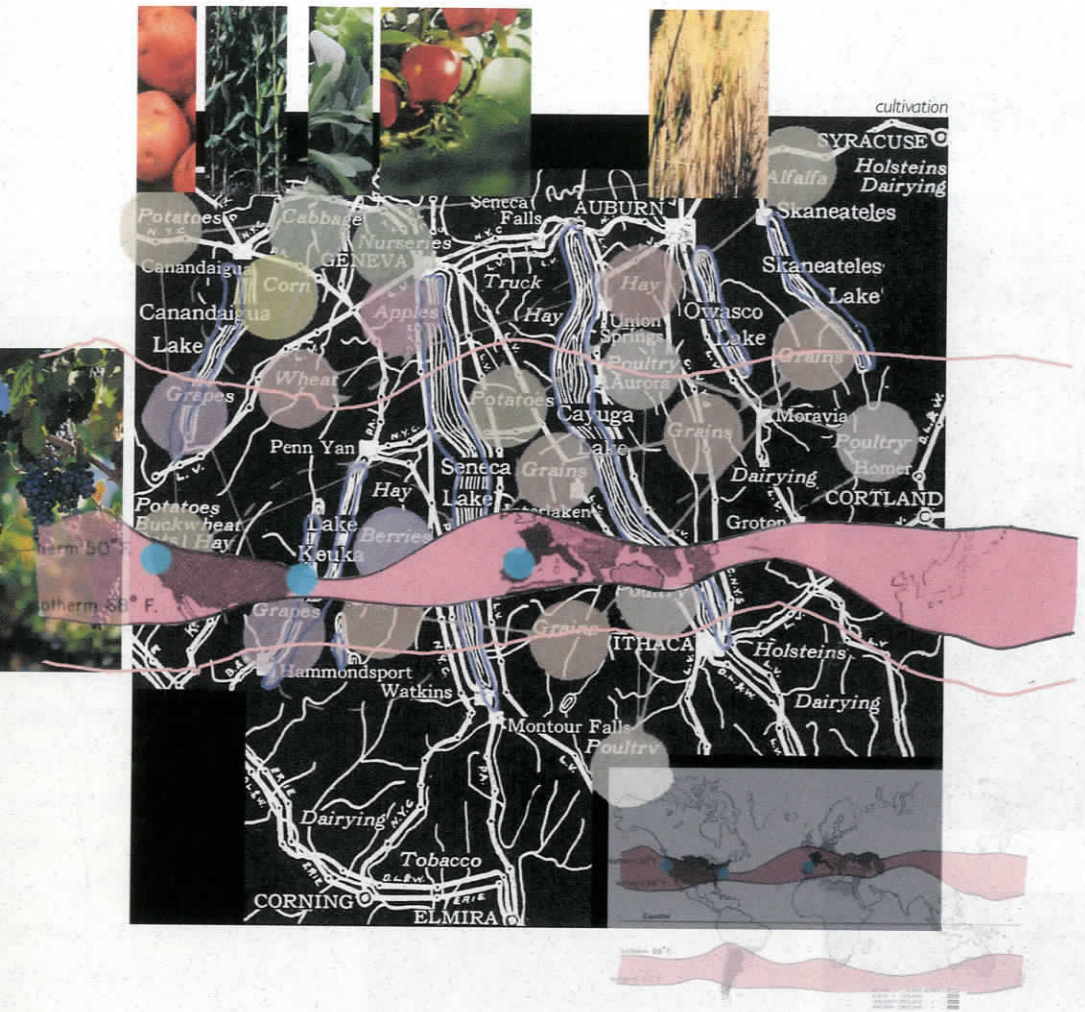
...*a primitive place*, evening fires, steel in the air, sleepers and rails, black coal and dark water...

...*distributing the discovered material* uniformly across the new plaza...

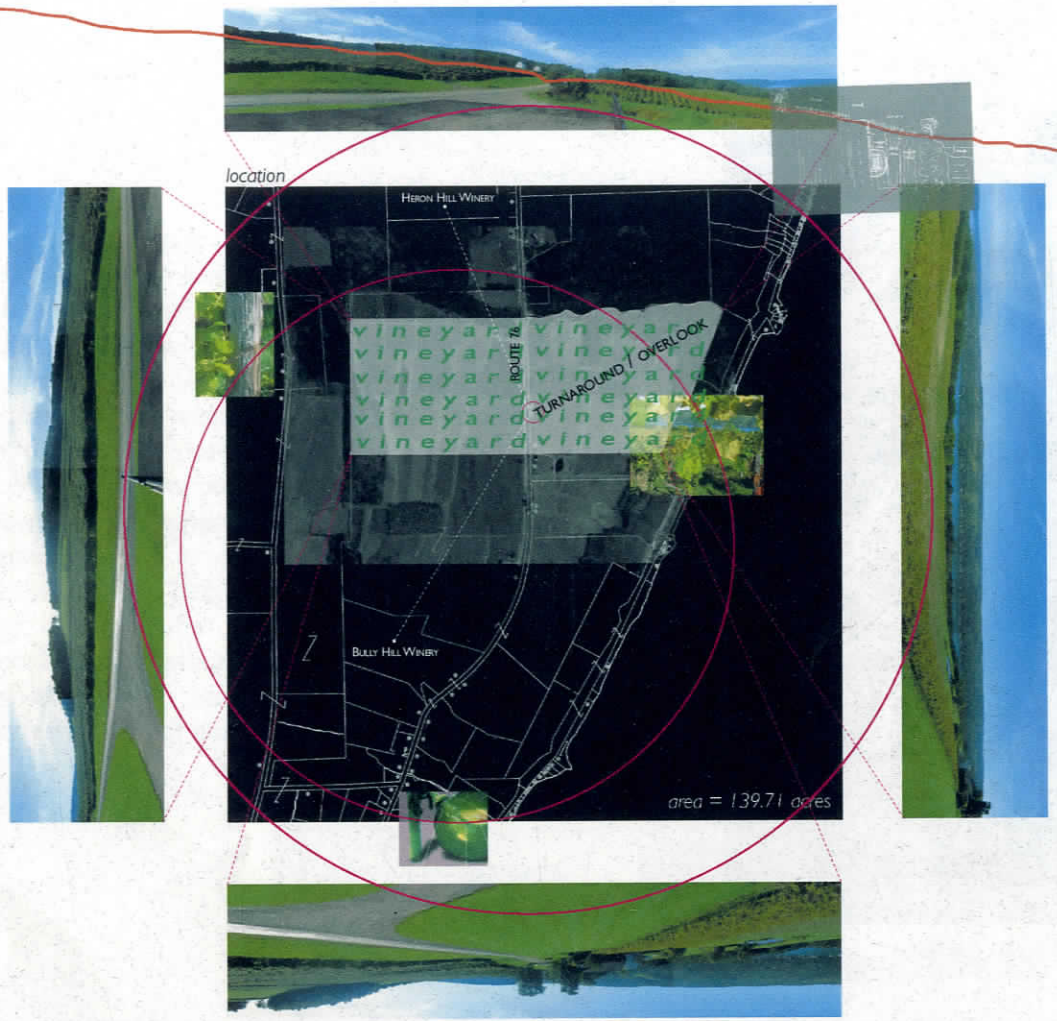
...*in a place wherein resides the memory* of the steel alchemists, the boatbuilders, the land tillers, with all the components of that crucible amalgamated for the public...

...with *an alternative topography*...

...a geography for *pocketing the surrounding landscape*...



The combination of varied soil distribution and the region's humid continental climate yields a wide variety of agricultural crops year-round. However, similar to the location of vineyards worldwide, there are specific areas notable for grape-growing. The western edge of Keuka Lake, along with the southern tips of Seneca and Cayuga Lakes are found within the same latitude as the grape-growing regions of France. Temperature is a crucial factor; the variations of the microclimate associated with the lakes and their valleys serve to reduce the risk of early fall frosts. Similarly, spring tends to be delayed two weeks because of lake cooling effects, allowing enough time for the vines to survive the frost-risk period.



There is an air of an older world about the town of Hammondsport; its central location within the area's wine country affords it the opportunity to benefit from tourist traffic as well as a quaint, small town population. In order to access the existing wineries along the edge of Keuka Lake, it is necessary to pass through the town. Along the edge of the lake runs Route 54A, a rough and narrow road mainly utilized by those with lakefront property. Directly adjacent to Route 54A is Route 76, where 2 wineries are currently located.

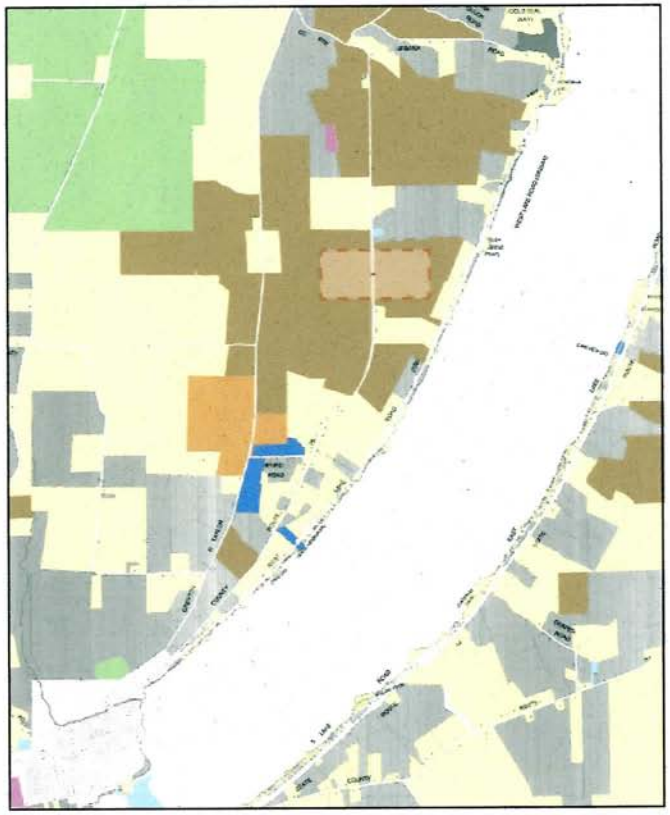
The proposed site for this thesis is approximately 2 miles North of Hammondsport, along County Route 76. The site is a parcel of land covered by approximately 150 acres of privately owned vines, located directly between Bully Hill Vineyards and Heron Hill Winery. Route 76 cuts through the middle of the site, running parallel to the lake and affords opportunities of siting various parts of the program on either side of the road. Heading towards the lake, directly off this road, is a turnaround and scenic overlook area built into the hill. The gently sloped land and expansive views of the lake provide an appropriate setting for a winery as well as various other outdoor programmatic areas.

The site was chosen because of its prominent lakefront location on a slight slope. Due to the microclimate of the lake, issues of early frost are mitigated. The prominent East/West orientation will serve the site with a continuous reading of field where vineyards are able to wrap around the entire site while at the same time systematically creating an edge within the field.

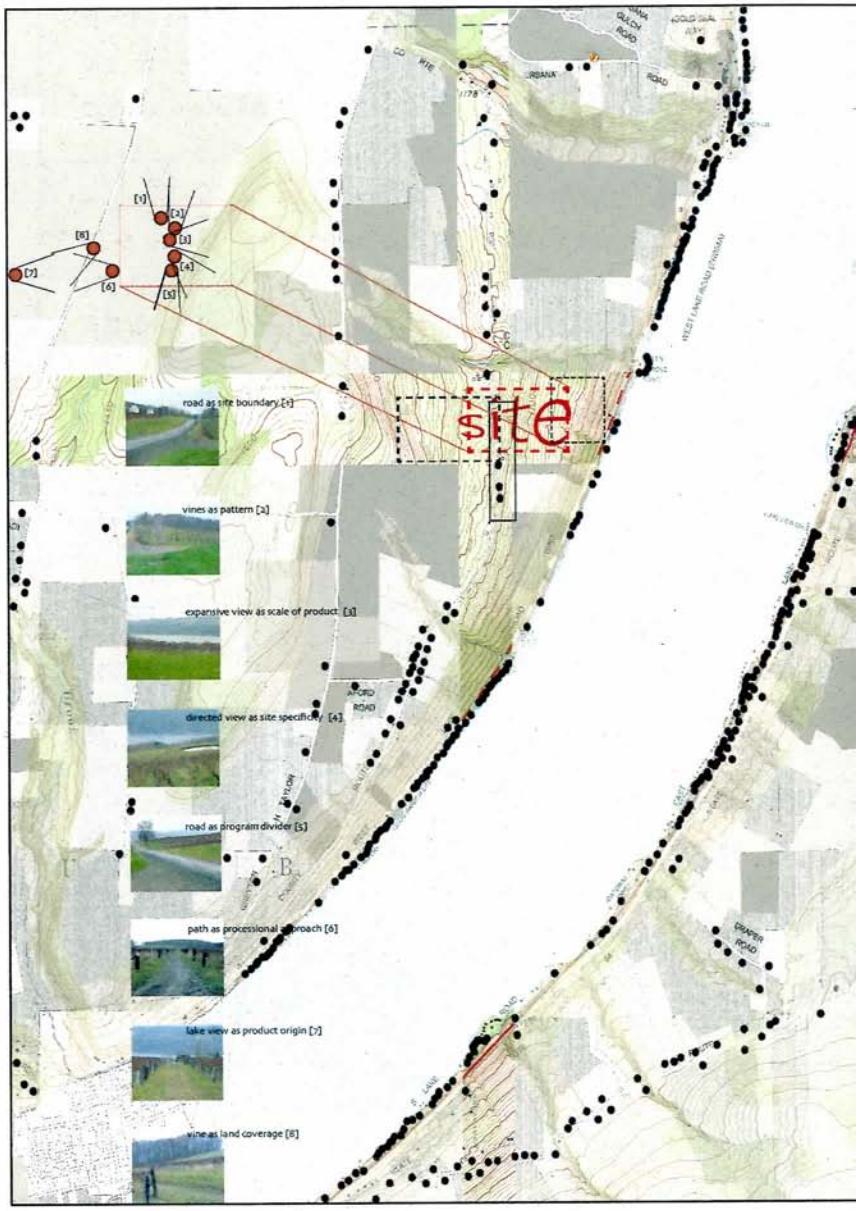
Aerial Map showing major roads leaving the town of Hammondsport and meandering through the patterned landscape along Rte. 76.

Political Boundary Map showing site bound in red; gray areas are vacant lands. Most land ownership crosses over the County Rte. 76 Hwy. and follows the topography; the sloped hills demarcate divisions of land moreso than the gov't regulations.

Ordering Principles of the Site include topography + rivers, existing structures (black dots), and views back to the lake. These elements set up a narrative framework for the experience to be had once at the site. While approaching from the town of Hammondsport, the narrow County Road increases in elevation, curving as it follows the lake and forest edge. As the site is reached, a clearing appears along both sides of the road and expansive views allow an immediate understanding of the larger context at hand.



Land Use Map showing areas of primarily agricultural (brown) and residential use (yellow) in the immediate context of the site. There is a visible lack of commercial (dark blue) and industrial (magenta) uses away from the village.



A System of Paths occurs at varying scales within the context of the site. The larger, most ecological path system is the water of the lake and its tributaries [meandering]. Next in scale are the set of paths that consist of two lane highways and smaller dirt roads [directional]. Finally, the paths town citizens take daily at the mouth of the lake, consist of sidewalks and neighborhood streets [local].

North end of site

- view of "Y" shape of Keuka lake in the distance
- concrete overlook/turnaround structure in foreground
- gentle slope of land is apparent
- site extends across County Rte. 76 currently running through the vineyards

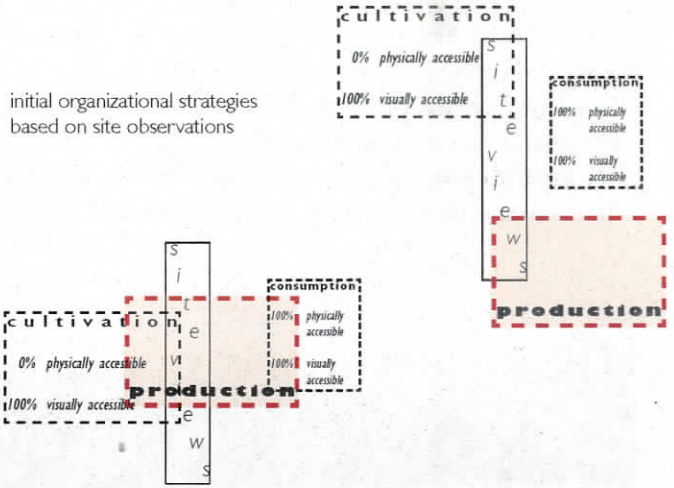
East end of site

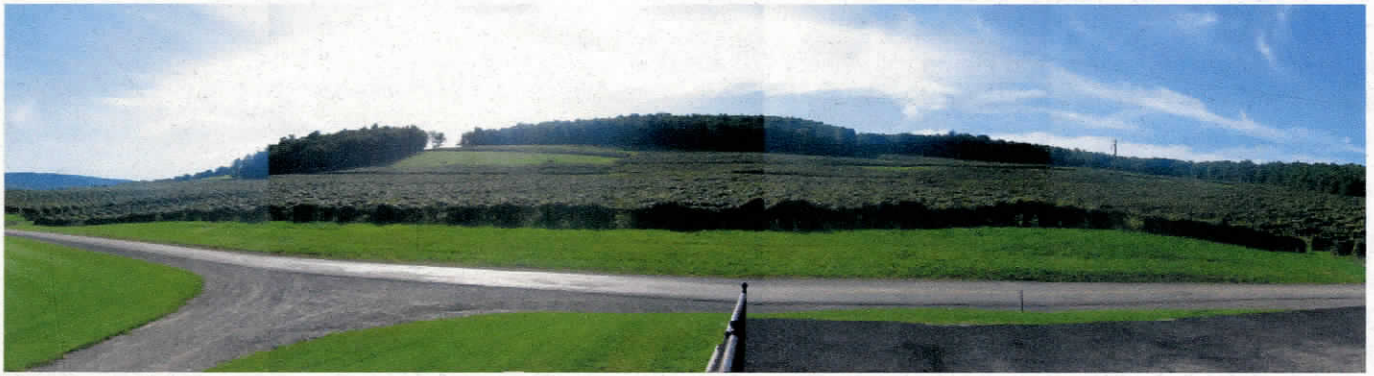
- unobstructed view of Eastern side of lake in foreground
- dense tree-line as barrier between field and lake
- vineyards occupy entire area running North/South, spaced at 8' intervals
- elevated viewing from overlook platform

South end of site

- view of the only residential structure within 2 miles
- relatively little foliage along sloped hill
- view of County Rte. 76 as divider of the 2 current vineyards

initial organizational strategies
based on site observations





West end of site

- sloping land running North/South as well as East/West, with high point in SW corner
- dense tree-line as barrier at back edge, acts as "container"?
- vines create separate reading of "field" overlaid onto existing grass/dirt

"There are few human pursuits that generate as intimate a relationship between people and the land they cultivate, as does viticulture. The well-tended vineyard is hillside transformed, the soil tilled and aerated, the vines tied and pruned, the fields laid out for optimal benefit of sun or shade. This is the essence of what geographers c viticulture's 'cultural landscape', the scenery of civilization, the layer of human works on the topography of nature. The cultural landscape of viticulture is embellished by t situation, architectural qualities, layout and general ambience of the towns, villages, chateaux, and more modest wineries that are the foci of viniculture and the wine trad The particular atmosphere that the tangible qualities of such a cultural landscape complement, attracts endless visitors among wine regions the world over; such an appeali environment draws society not just to sample the wines but to educate one another on the traditions and historical implications of such a complex commodity."-Harm Jan de B

Site viewed from across Keuka Lake
- located between Bully Hill Winery (114 acres) and Heron Hill Winery (20 acres)
- in one of the flatter areas between 2 sloping ends along the lake
- visible from numerous vantage points

Bully Hill Winery
- production process = different buildings for each step; lacks a unified layout
- setback from the main road which leads to obstructed views of the lake
- manufacture 50+ varieties of red/white/rose wines; more commercially oriented than concerned with educating the visitor

Heron Hill Winery
- located 3+ miles down Rte. 76 from the village center; somewhat secluded from public discovery
- does not offer tours of facilities; only allows consumers to experience finished product in grand tasting room
- do not stay consistent with product varieties from season to season; not able to compare quality

One not only drinks the wine, one smells it, observes it, tastes it, sips it and--one talks about it.

-King Edward VII

A "cultural container" through the structure of a winery and outdoor performance center is the form that the contention will take. This program will explore the issue of wine as a site specific intervention; in terms of historical evolution, cultural phenomena and social gatherings, the program will exhibit a reciprocal relationship to its ecological identity. Its proximity to Keuka Lake, allows for exterior places of gathering merged with interior spaces of movement. The processional development of wine will be further enhanced by a continuous evolution of one's olfactory sense as a directional device. The primary function of the building will be to educate visitors on the intricate environmental processes of winemaking, through the lens of spatial transformations; containment vs. expansion, boundary vs. threshold, and hierarchy vs. reciprocity.

In order for the winery to be utilized year-round and differentiated from the surrounding establishments, a reinterpretation of the idea of "event" is intrinsic to the program. Events are seen as soft, hard, or undefined. A "soft" event shows a less cyclical structure; its location is established by a more or less continuous flow [harvest]. A "hard" event has a specific location and duration [fermentation]. The "undefined" event is the most incorporative [bottling] and functionally breaks down into peripheral sites of circulation, distribution, and storage.

The inclusion of outdoor performance space is crucial to the success of the design. The integration of one's sense of smell, sight, touch, and taste are exploited in existing winemaking facilities; however, there is a lack of utilizing one's sense of hearing to fully comprehend the complex arrangement of events. The vineyard's geometric organization must be occupiable in specific areas in order to allow the acknowledgement of a complete transition from rough terrain to built form. The amphitheater, while embedded in the sloped hillside, speaks directly to interior programmatic elements, as one can't appreciate the art of a finished product until its basic components are clearly legible.

The layout of an amphitheater relates the natural ground plane to dynamic activities of human entertainment. The inherent qualities of a sculptural intervention into the landscape intensify readings of layered space, exact geometries and the environment as occupational site. An outdoor performance space would further enliven the site and encourage exchange of various forms of dialogue, technique and artistry. The addition of an outdoor theater space is not new to the design of a winery; the act of sitting among nature while experiencing an impromptu performance speaks to notions of process and ritual.

production tasting room [300 sq. ft.] + processing [400 sq. ft.]

library / laboratory [400 sq. ft.]

bottling room [400 sq. ft.]

shop / maintenance [500 sq. ft.]

mechanical systems [500 sq. ft.]

wine shop [500 sq. ft.] + tasting room [700 sq. ft.]

kitchen [500 sq. ft.] + restaurant & cafe [800 sq. ft.]

offices & conference room [1,000 sq. ft.]

receiving & crushing areas [1,200 sq. ft.]

wood tank room [1,600 sq. ft.]

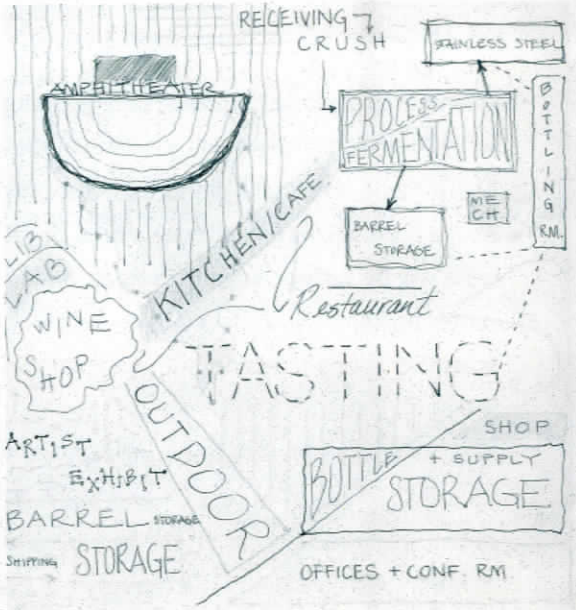
fermenting & processing [2,400 sq. ft.]

bottle & supply storage [2,400 sq. ft.]

barrel storage [4,000 sq. ft.]

shipping storage [4,000 sq. ft.]

This program diagram shows relationships of interior / exterior spaces as well as the needs of certain aspects of winemaking to be shielded from public interaction. The hierarchy of spaces is noted by size and connection of one place to the next.



This program chart divides up the various spaces into levels of "opacity":

"OPAQUE" programmatic aspects are those that the public can't see or access at all [pink]

"TRANSLUCENT" programmatic aspects are visible by the public but not necessarily accessible [yellow]

"TRANSPARENT" programmatic aspects are entirely accessible, visible and in some cases interactive [green]

outdoor tasting area [500 sq. ft.]

temporary exhibit: local village artists [500 sq. ft.]

permanent exhibit: regional / cultural history [700 sq. ft.]

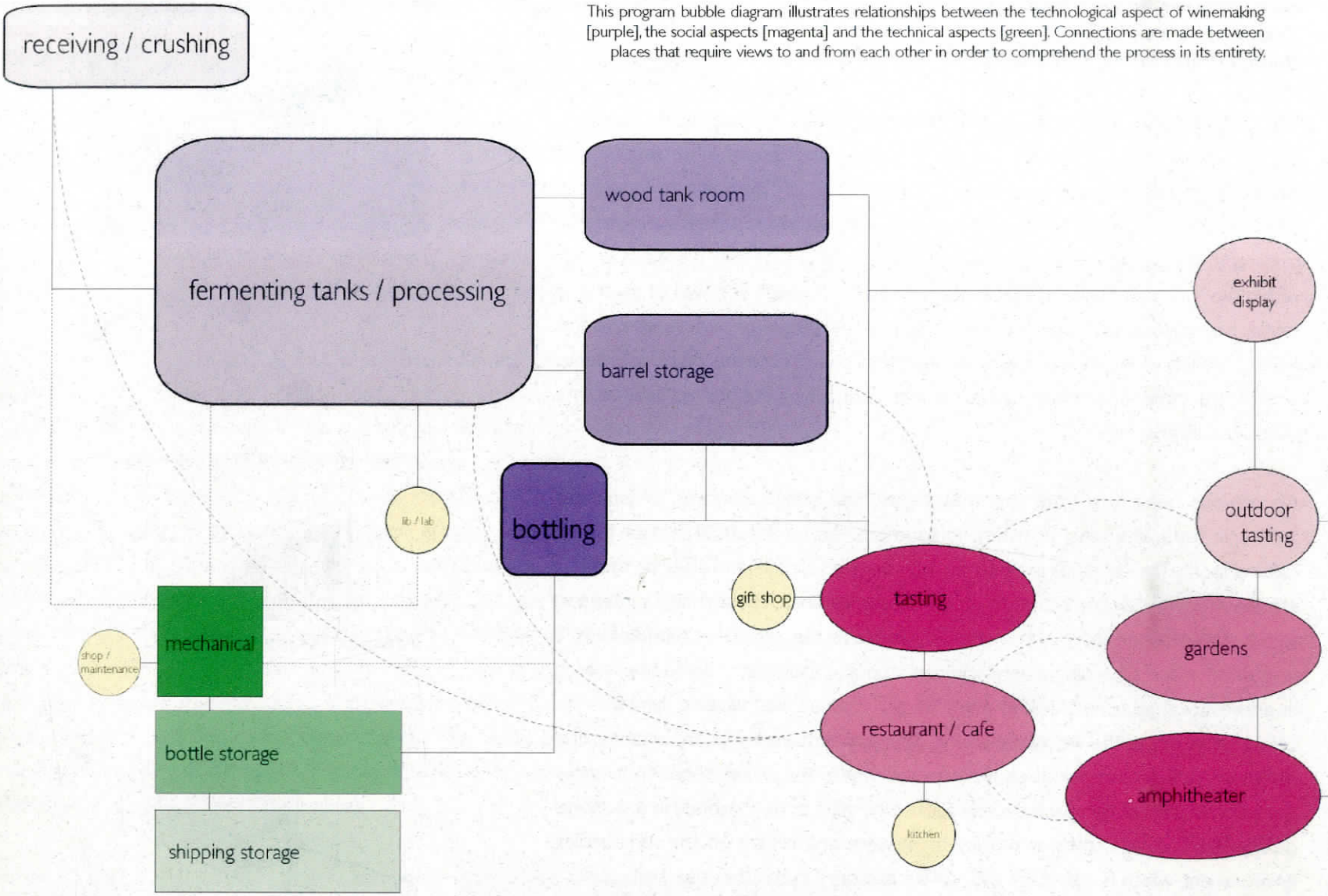
sculptural garden [800 sq. ft.]

amphitheater [2,000 sq. ft.]

total winery program – [21,600 sq. ft.]

total outdoor program [4,500 sq.

This program bubble diagram illustrates relationships between the technological aspect of winemaking [purple], the social aspects [magenta] and the technical aspects [green]. Connections are made between places that require views to and from each other in order to comprehend the process in its entirety.

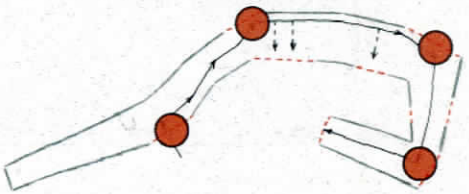


Matsunoyama Science Museum
Takahara & Yei Tezuka
Niigata Prefecture, Japan, 2003

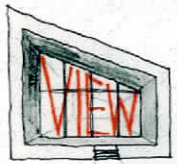
The undulating layout of the Cor-Ten steel clad structure, designed by Takahara and Yei Tezuka addresses issues of viewing, climate, and display in an organic, yet innovative manner. Occupying a site 145 miles North of Tokyo where mountains meet fields once cultivated for rice, the snaking structure optimizes views to the landscape through its use of floor-to-ceiling glass and strategically placed openings within the 112 foot tower at the western end. The concept of a wall of glass as a spatial boundary is one that may be utilized in this thesis for various effects; the material quality of the glass of a wine bottle allows one to read the interior contents, while at the same time, distorting the color and containing the desired product in a controlled atmosphere.

An obvious departure from the typical glass and steel structures of Japanese architects today, the steel armature looks more like an industrial artifact than a cultural facility. The building's irregular form, variegated surface, and absence of highly articulated details all contribute to it's unique appearance. The architect's intention to integrate interior and exterior is clearly visible as the circulation path unfolds. "I wanted to make a building where you can stop and look out....if you are walking in a forest, you stop and look at many things." Framed like pieces of art, floor to ceiling views out to the woods, fields and distant mountains are as important as the material inside. Picture windows are inserted where the museum bends, to allow the accumulation of compacted snow against the glass to be exhibited in a sectional quality. The building serves as a place to observe and reflect on the surrounding environment, which is a strategy that will be explored in this thesis as well.

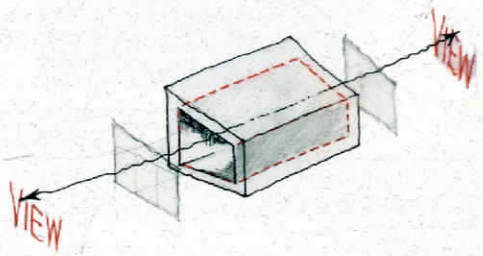
site condition - serpentine footprint



circulation w/moments of floor to ceiling glass



end corridor = full length glass wall

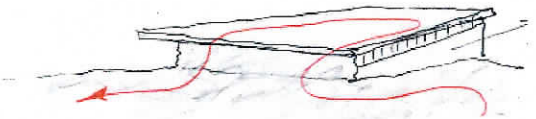


exploded enclosure

Museum of the Earth
Weiss / Manfredi Architects
Ithaca, New York, 2003

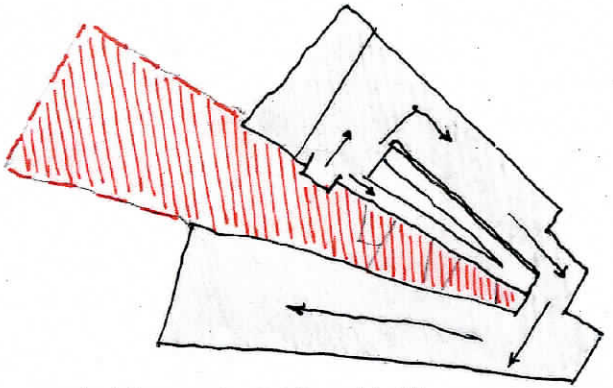
site condition: rising out of the earth

The landscape this museum is situated within, one shaped radically by water in terms of glaciation, is coincidentally the same region of the proposed thesis. The geologically rich Finger Lakes region of upstate New York allows for a site specific strategy to be explored; the streams that have gouged ridges surrounding the lakes reveal millions of years of geological history and expose a wealth of fossils to be studied by visitors to the area.

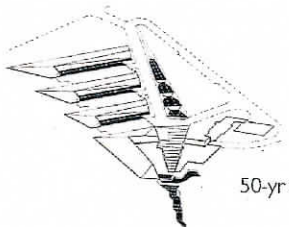


continuous reading of earth / surface

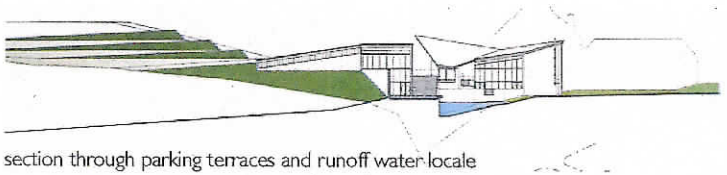
The architecture is as engaging as the exhibits, with the two parallel, angled wings separating in the center, forming a powerful line of sight down behind the museum, showing off the Cayuga Lake Basin. The entrance terrace flows between the two pavilions as an embodiment of the path of water that recalls the direction it took through the site years ago. Utilizing the topography found near Cayuga Lake as an integral part of the museum's design is successful in creating a strong understanding of the history of the site, while one moves through the poured-in-place concrete and steel structure. The main exhibitions are located below ground, accessed by a ramp along the southern façade of the larger pavilion. This approach could be utilized in the design of a winery since it allows the visitor to understand the physical reality of their relationship to the earth as they slowly proceed into an underground space and provides thermal benefits to the designed exhibition rooms; winery design typically employs gravity to aid in the process of transporting the grapes once they've been filtered and are on their way to fermentation areas and further processing.



circulation around central fizzure in building



50-yr storm diagram



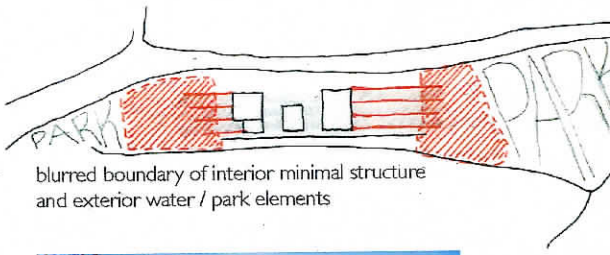
section through parking terraces and runoff water locale

Beyeler Foundation Museum
Renzo Piano
Riehen (Basel), Switzerland, 1992-1997

This art museum designed by Renzo Piano is immersed in surrounding vegetation within the suburbs of Basel, Switzerland. Specific site considerations drove the design; primarily, the museum had to be entirely integrated into nature, amidst the trees of the once-private park it is contained by. Piano therefore settled the building low in the landscape so that it would appear to emerge from the slight slope on the farm-field side, without being sunk too deep on the entrance side; it fills more than a third of the length of the site, and most of its width.

From the general plan, the Beyeler museum consists of four bearing walls of equal length, running parallel to the wall enclosing the site and the exhibit spaces are arranged in straight rows in relation to the resulting space. Cross-sectionally, the project becomes much more dynamic. The easternmost wall gradually tapers off, guiding the visitors toward the entrance. A glass partition separates the west facade from a long, narrow garden; the park, the trees, and the lake seem to flow into the museum. There is an interweaving of inside and out throughout the building, however it's especially clear where the temple-like south elevation seems to rise out of the pond flanking it. The sides and bottom of the window frames are concealed so that the floor and walls extend smoothly toward the pond and stone-faced walls outside, indivisibly interlocking interior and exterior, architecture and nature.

Incorporating a structural strategy similar to Piano's system of bearing walls running the length of the site allows for the subject of the building to be displayed free of distraction, further engaging what occurs outside the walls with what the visitor is viewing while located inside the winery. The design utilizes red stone in the parallel bearing walls, glass panels as the cantilevered roof and mesh shade panels to further diffuse the natural light coming through the glass roof structure; another method of incorporating earthen qualities into the structure of a winery is the use of natural, warm materials, non-intrusive to the context. "The building is based on an approach that asks the viewer to use his or her senses to assess the relative weight of materials."



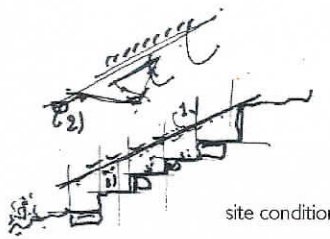
blurred boundary of interior minimal structure and exterior water / park elements


interior galleries / exterior ponds merge as one


aerial photo of site condition


predominant structure = linear wall system with a glass plane and metal roof hovering above

RENZO PIANO BUILDING WORKSHOP
RENZO PIANO
PUNTA NAVE (GENOA), ITALY 1989-1991

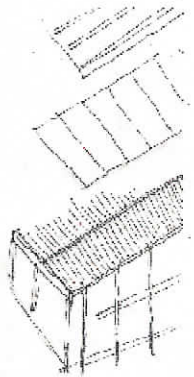


site condition: stepped terracing

"What the building offers is not the sense of secure withdrawal once offered by buildings, but rather an openness to, and participation in, as many aspects of the world and nature as possible." Perched on a hill surrounded by the sea, Punta Nave houses the Genoa headquarters of the Renzo Piano Building Workshop. Built in 1989 toward the western edge of Genoa, the site has been purposely isolated like a desert island. It is in perfect harmony with its surroundings; the workshop's gradually sloping terraces, which open onto the sea, are built in glass and made to be exact replicas of the traditional greenhouses found on the Ligurian coast.

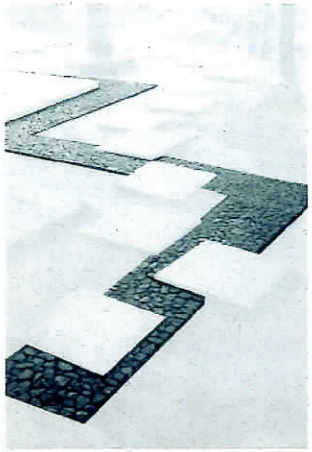
The single volume of the workshop, with the floor stepping up the slope and back into the hill, and the continuing terracing outside allows the steep hillside topography to be understood and used to its full capacity. The space has an ethereal quality, characterized by transparency, movement of light, and a constant change of scale in the most intricate connection details. This site-specific design employs ways in which one could mediate between the necessity for sloped vineyard lands, the flat ground required of production sequences, and the stepped layout of an amphitheather.

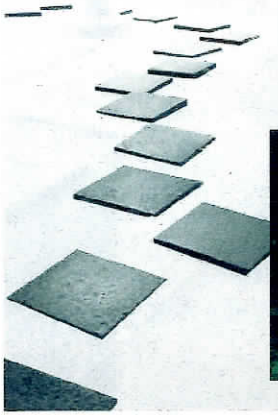
The visitor to the structure is constantly reminded of their location in relation to the edge of the coast of Italy, where greenhouses once were abundant. The idea of recalling a previous history of the region this thesis will inhabit can be established through views and circulation patterns in constant dialogue with the site's crucial location along historical Keuka Lake.



exploded view of materials and construction methods

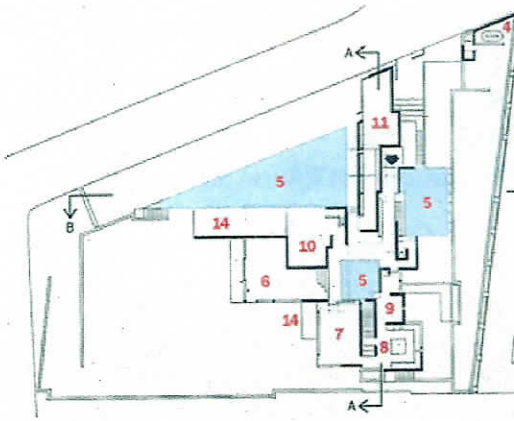
sloped site views, among a mostly glass enclosed workspace





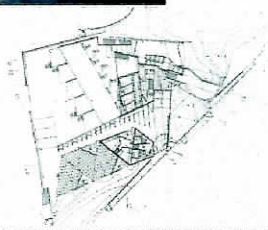
shift in orientation / screened views

KATSURA VILLA, JAPAN, 17TH CENTURY



massing volumes / planar elements / pinwheel circulation / w

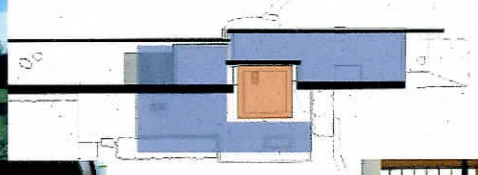
sloped site condition
views framed by bldg
natural materials
carved effect of ascent



SCHOOL AT MORELLA, SPAIN, CARME PINOS, 1993

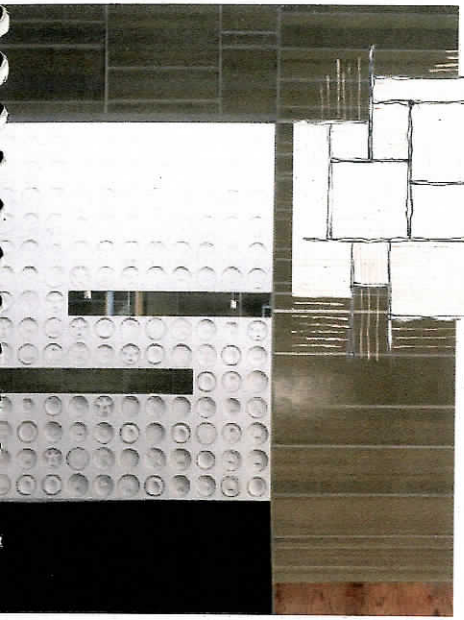
GGG HOUSE, MEXICO CITY, ALBERTO KALACH, 2

interlocking volumes / orthagonal organization / linear elements

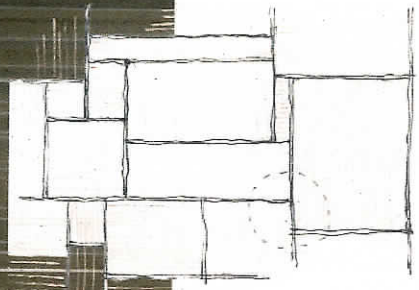


ceremonial area as pivot point

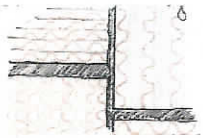
ISLAND HOUSE, ONTARIO, SHIM & SUTCLIFFE, 2001



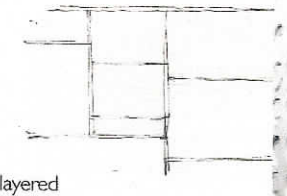
directional shifts / structural capacity

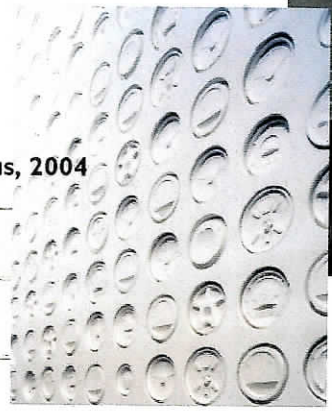


readings of light / density / texture appear in various conditions



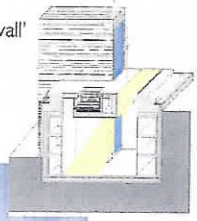
INI ANI COFFEE SHOP, NYC, LEWIS.TSURUMAKI.LEWIS, 2004

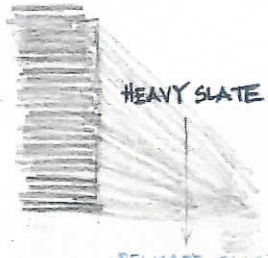




corrugated cardboard stacked / layered

sectional quality of glass 'wall'



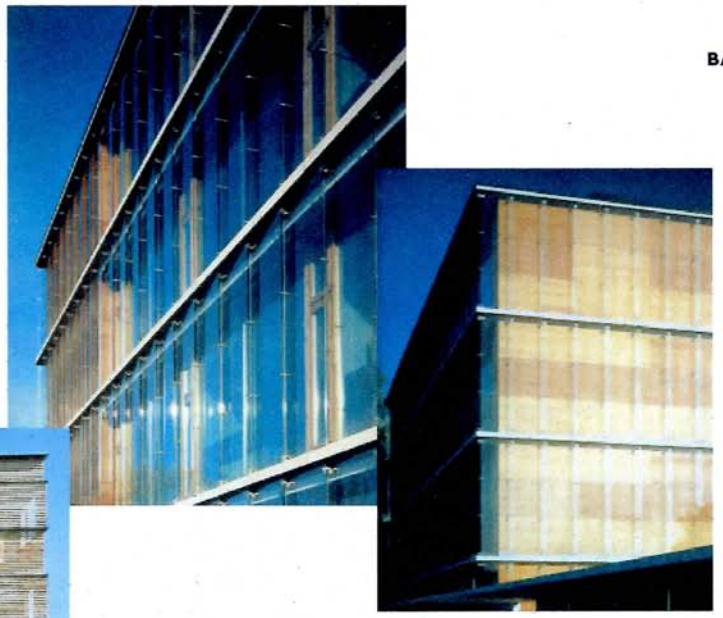


smooth glass / rough glass: stacked / layered

OUSE OF GLASS, NETHERLANDS, 2003

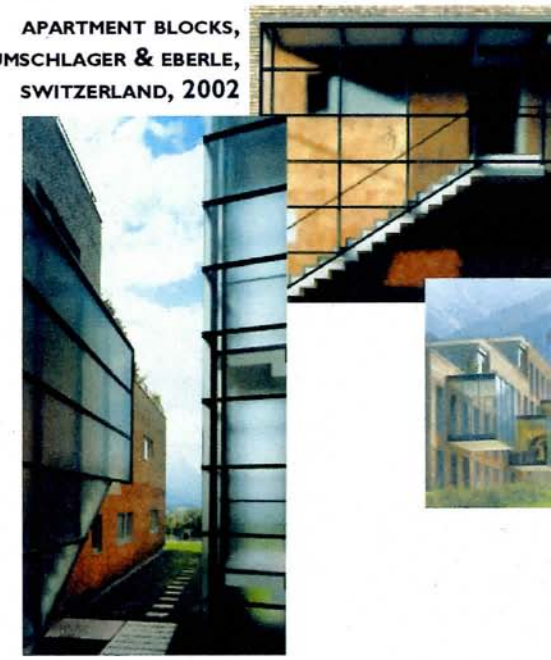
PANTHEON DE LA ALBERCA, SPAIN, MANUEL CLAVEL ROJO, 2002

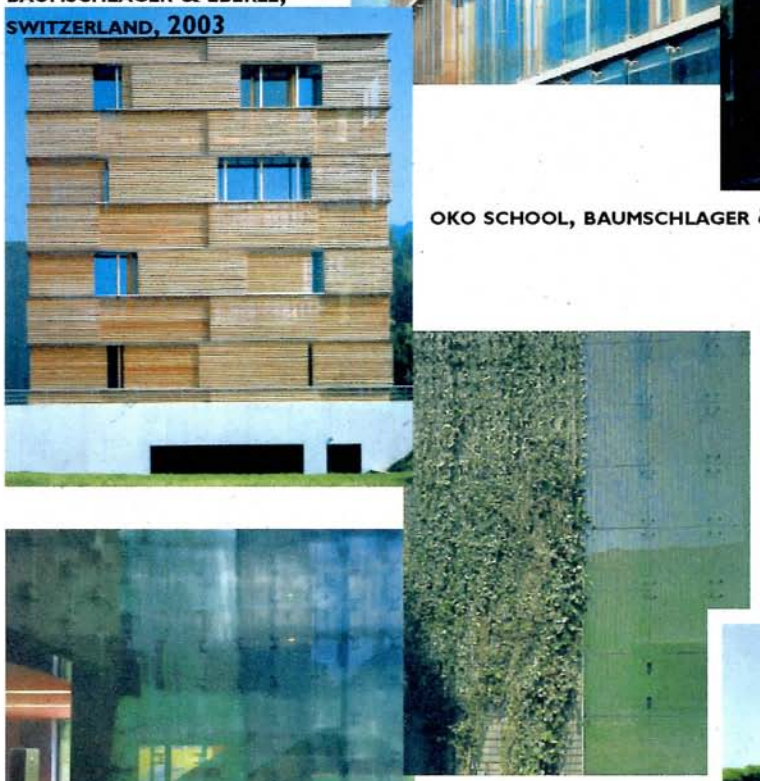
BTV BANK & HOUSING, BAUMSCHLAGER & EBERLE, SWITZERLAND, 2003



OKO SCHOOL, BAUMSCHLAGER & EBERLE, SWITZERLAND, 2001

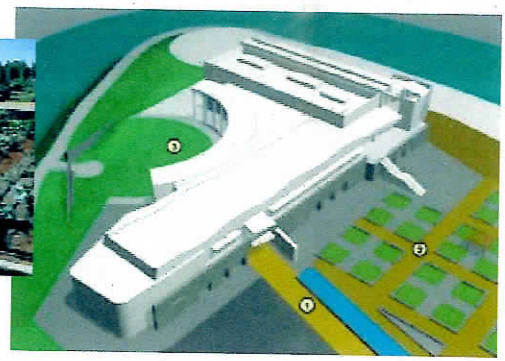
APARTMENT BLOCKS, BAUMSCHLAGER & EBERLE, SWITZERLAND, 2002





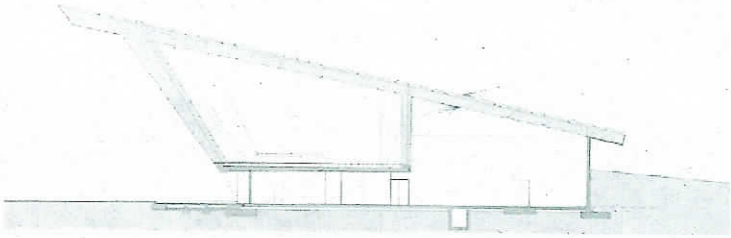
HEDGE BUILDING, ATELIER KEMPE THILL, GERMANY, 2003

HOSPITAL/PHARMARCY, H&DEM, SWITZERLAND, 1996

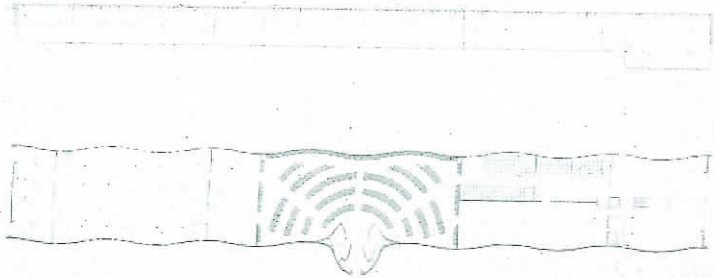


programmatic elements of variety:
- garden walks
- concert terrace
- exhibition / gallery / educational space

COPIA: THE AMERICAN CENTER FOR WINE, FOOD & THE ARTS, NAPA, CALIFORNIA, 2001

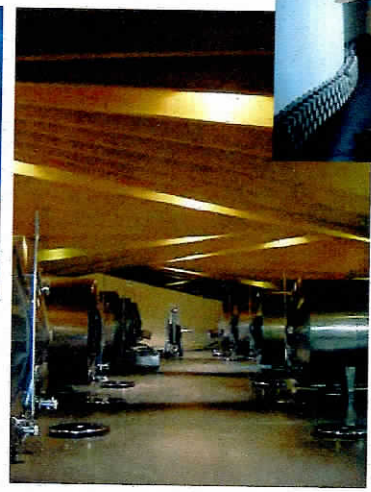


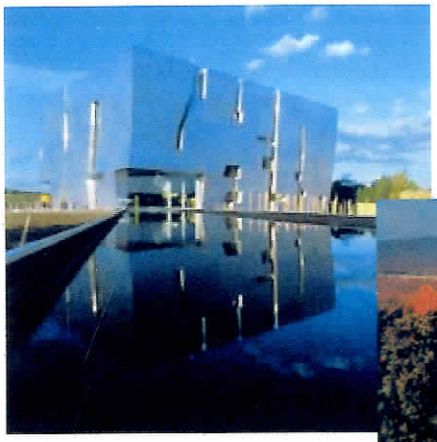
Cross section



YSIOS WINERY, ALAVA, SPAIN, CALATRAVA, 2000

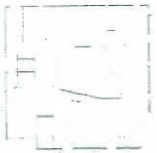
The building is conceived as an element completely integrated in the surrounding landscape and, at the same time, as an autonomous site-specific sculpture.



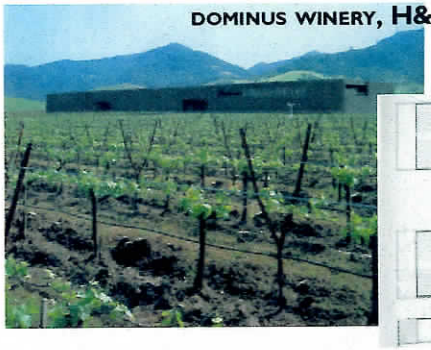


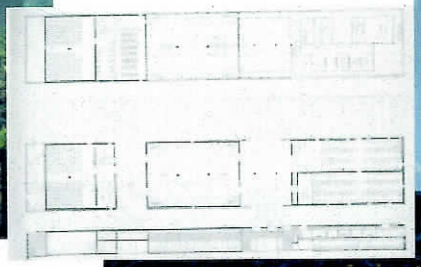
LOISIUM VISITOR CENTER, AUSTRIA, STEVEN HOLL, 2003

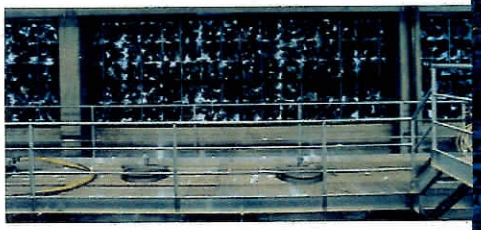
Steven Holl's building transforms the layout of the cellar network into an abstract, three-dimensional cube-shaped space. The outer skin of the building consists of brushed aluminium and part of the inner surface cladding is of light cork.

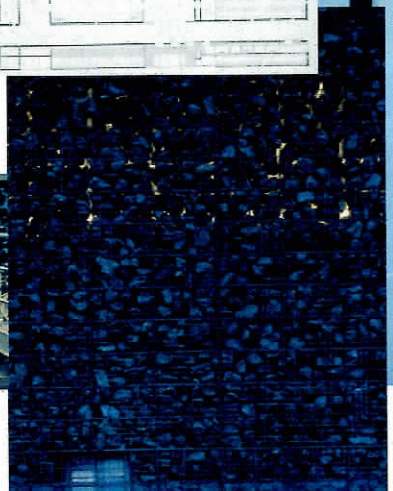


DOMINUS WINERY, H&DEM, NAPA, CALIFORNIA, 1997

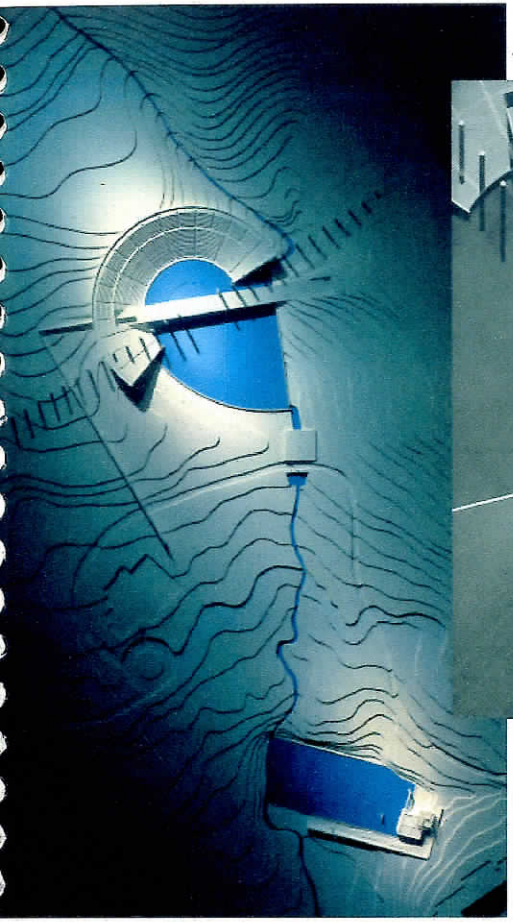




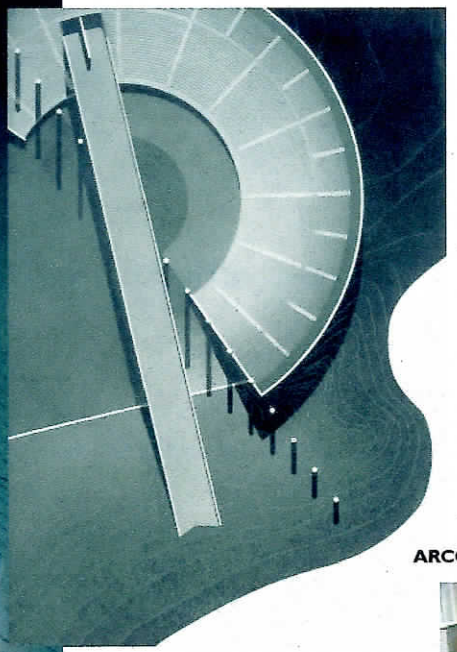


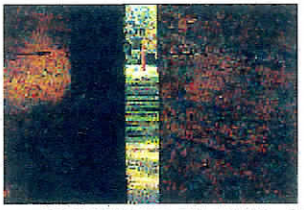


Their approach was to integrate the winery into the landscape, echoing the belief that the vineya of utmost importance. Indeed, from a distance, the gabion structure dissolves into the landscape a has been dubbed by the locals "the stealth winery."



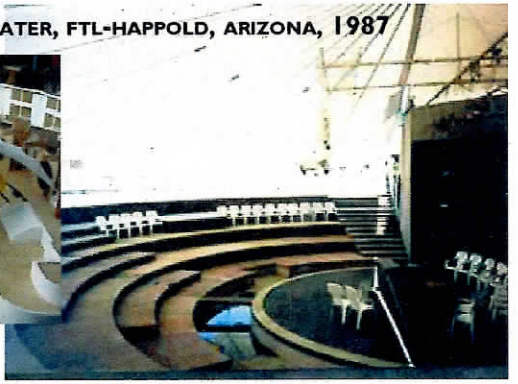
THEATER ON THE WATER, ANDO, JAPAN, 1988

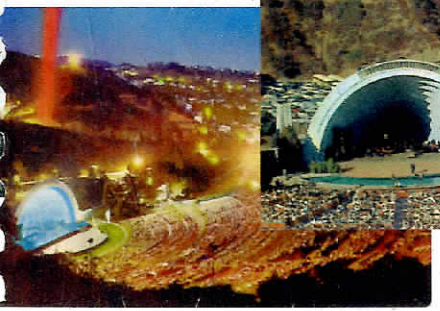




SCULPTURAL THEATER, BEVERLY PEPPER, ITALY, 1991

ARCOSANTI CANVAS AMPHITHEATER, FTL-HAPPOLD, ARIZONA, 1987





.OLLYWOOD BOWL, CALIFORNIA, 2004

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